**Technical Report 1288**


# A Framework for Understanding Collective Leadership: The Selective Utilization of Leader and Team Expertise within Networks

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To date, the dominant approach to leadership research assumes that all aspects of the leadership role within a team are embodied by a single individual. In the real world, however, this is rarely the case. Rather, multiple individuals within the team may serve as leaders in both formal and informal capacities, and the shifting of leadership responsibilities is often rooted in which individual's expertise is most relevant to the given problem. In the present effort, we add to the rapidly growing body of work that focuses on the distribution of the leadership role among multiple individuals. We have reviewed relevant extant literature and proposed an integrated framework for understanding the collective leadership process. Also, in developing this framework we have taken an information and expertise-based approach such that we propose that collective leadership, or the distribution of the leadership role, is a function of selectively utilizing the information or specialized expertise that individuals within the network possess. In reviewing the framework, 55 propositions with regard to the collective leadership process are outlined and suggestions for future research are provided.

15. SUBJECT TERMS

leadership, collective leadership, distributed leadership, shared leadership, social networks, adaptability, team performance

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A FRAMEWORK FOR UNDERSTANDING COLLECTIVE LEADERSHIP: THE
SELECTIVE UTILIZATION OF LEADER AND TEAM EXPERTISE WITHIN NETWORKS

EXECUTIVE SUMMARY

Research Requirement:

As the United States Military moves into an era where asymmetric warfare becomes a
day-to-day reality, it is critical that the Army leadership strategies be re-evaluated in this new
context. A key characteristic of this new environment is that complex, ill-defined problems
emerge rapidly requiring an organizational response under high risk conditions where outcomes
of action are unclear. These problems conspire to place a unique set of demands on unit leaders.
One key demand made by the problems posed in asymmetric warfare is that leaders must operate
in a collective fashion. Put more directly, leaders throughout the organization must coordinate
and integrate their activities to arrive at an effective resolution of unique, rapidly unfolding,
problems. Thus, leadership becomes a collective organizational enterprise as opposed to an
individual-level, command and control, phenomenon.

Although some research has focused on shared and distributed leadership, there is a need
for a comprehensive review of shared, distributed and related theories and an application of their
findings to how leadership might operate collectively in the United States Army. One pathway
by which collective leadership may operate, which is the focus of the proposed framework for
understanding collective leadership, is via information exchange and the selective emergence of
expertise. The complex, ill-defined problems that the U. S. Army is facing in this new era of
warfare often require different types of information or expertise based on the situation that arises.
In response to these dynamic problems, it is believed that it would be to the unit's benefit if
individuals with the relevant expertise stepped into a leadership role to use their expertise in
addressing the given problem.

To facilitate our understanding of how collective leadership operates through the
selective emergence of expertise, it was necessary to review the existing relevant literature and
propose a framework, or lens, through which we can understand collective leadership and make
propositions for future research.

Procedure:

The present framework was developed by reviewing relevant existing literature,
abstracting critical concepts and evaluating relevant studies to make propositions regarding the
relationships between these concepts. This resulted in the proposed integrated framework for
understanding the collective leadership process. Once the framework was developed, potential
studies were proposed for testing components of the framework

Findings:

There are several important contributions emerging from this effort. The report provides
a review of relevant existing theories that can be used to understand how collective leadership

might operate. Based on this review a framework of collective leadership was developed and propositions were made for the relationships between concepts in the collective leadership framework.

Utilization and Dissemination of Findings:

It seems clear that developing collective leadership within the U.S. Army could increase adaptability in situations that require a response to complex, ill-defined problems. Investigating the relationships proposed in the present framework and using the findings to facilitate and intervene to develop collective leadership may significantly impact units' success in resolving the increasingly unpredictable problems that they face. Findings from this effort provided the foundation for an article published in *The Leadership Quarterly* (Volume 20, Number 6) with the purpose of presenting the conceptual framework to the research community.

A FRAMEWORK FOR UNDERSTANDING COLLECTIVE LEADERSHIP: THE
SELECTIVE UTILIZATION OF LEADER AND TEAM EXPERTISE WITHIN NETWORKS

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A Framework for Understanding Collective Leadership:

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**Introduction**

The long-standing conceptualization of leadership, both among researchers and the general public, is that it is a leader-centric or individual-level phenomenon. When asked to define leadership, it is difficult not to think of a single individual providing direction and inspiration to a group of followers, particularly within the military context in which "leadership" frequently follows defined hierarchical pathways. Among the three main ways of defining leadership, as a person, role, or process (Yukl, 2009), it is most often studied in terms of the person (Hunter, Bedell-Avers, & Mumford, 2007; Rost, 1993). In reality, however, leadership rarely plays out at only the individual level. Rather, leadership is a complex, dynamic process in which the behavioral roles that often fall under the leadership umbrella may be taken up by multiple individuals (Gronn, 2002) and exchanged across the leader and team level (Dansereau & Yammarino, 1998; Day, Gronn, & Salas, 2004). It is this exchange, and the selective and dynamic emergence of individuals whose skills and expertise are most appropriate to a given situation, that we propose to be the crux of collective leadership. We hope to ultimately demonstrate the potential benefits of collective leadership and to present one way of interpreting how collective leadership may occur within a team.

Leadership research, as an area, has a vast array of theories that have focused on the traits and behaviors of individual leaders, the relationship between a leader and a follower, the leadership processes that occur within a team, and, more recently, the ways in which the leadership role can be shared. The present effort focuses primarily on extending this most recent effort in understanding how the leadership role is distributed, but is unique in that it does not do so to the exclusion of other relevant theories. Thus, rather than defining a distinct model of leadership, we intend to propose a framework by which we may understand the process of collective leadership as it relates to more traditional "top down" models of leadership, team leadership theories, and organizational-level factors such as culture and climate, among others. Thus, it is critical to note that the proposed framework does not obviate the presence or use of traditional leadership behaviors. Rather, traditional leadership may often play a role in the collective leadership process. The interconnections of these concepts and the role that they play in the collective leadership process will be the main focus of the present report.

The definition of collective leadership that will be used as we move forward in our discussion of the proposed framework is that it is a dynamic leadership process in which a defined leader, or set of leaders, selectively utilize skills and expertise within a network, effectively distributing elements of the leadership role as the situation or problem at hand requires. In addition to defining the collective leadership process, our goal in the present effort is to draw attention to the multi-level nature of this phenomenon, and to highlight the criticality of information and communication to the emergence of collective leadership. Also, through a series of propositions, we hope to guide future research in this area. We begin by addressing assumptions made in the literature that we believe are limiting our understanding of collective leadership. We will then provide evidence for the benefits of collective leadership and provide a general overview of the framework. The main focus of the article, however, will be a review of each concept within the framework along with propositions on the concept's role in the

emergence of collective leadership. We conclude with a review of limitations of our approach, implications for research and application, and general conclusions.

## Assumptions of the Extant Literature

Given the shift towards a role perspective of leadership, there has been significant advancement in work on both the sharing or distribution of the leadership role (Gronn, 2002; Hiller, Day, & Vance, 2006; Pearce & Sims, 2002) and the interaction between leaders and team processes – recognizing that there is an important interplay between the leader and the members of a team (Day et al., 2004; Taggar, Hackett, & Saha, 1999). The development of these theories has been an important step in understanding the complexities of leadership; however, we feel these areas do not fully account for the ways in which leadership is actually shared in real-world settings and are limited by some critical assumptions.

First, most research on shared or distributed leadership takes the approach that it is a static condition in which the role behaviors may be explicitly divided or entirely shared (Yukl, 2009). In reality, however, it seems that the sharing of leadership, as an influence *process* rather than a defined position, is likely much more dynamic and occurs as the need arises. Rather than a defined set of two or more leaders sharing the leadership role, the person with the most relevant skills and expertise at any given time will be the one that takes on the leadership role, making it a more fluid process. This selective emergence of individuals can arise through informal channels but may be explicitly activated by a leader or set of leaders.

Additionally, much of the work on the interaction between leaders and teams makes the assumption that the team that the leader is acting on is a homogenous unit in which individuals are assumed to have similar characteristics and respond to the leader in the same way (Zaccaro, Rittman, & Marks, 2001). In reality, however, team members typically bring diverse skills and expertise to the table, which is an important precondition to the selective emergence of different individuals into the leadership role. While there has been advancement in both shared and distributed leadership and the interaction between leader and team processes, we believe the proposed framework will further advance our understanding of the phenomenon by reconsidering these assumptions.

## Evidence for the Benefit of Collective Leadership

Conceptualizing leadership as a role, and a role that can be selectively distributed among individuals within a team depending on the expertise required, is a critical theoretical transition given several important trends in modern organizations. Specifically, organizations have seen an increased use of teams (Zaccaro et al., 2001), more problems that are rapidly emerging and complex (Hannah & Lester, 2009; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000), and an increase in the importance of innovation and adaptability (Friedrich, Mumford, Vessey, Beeler, & Eubanks, 2010). The benefit of utilizing collective leadership with regard to these organizational trends is evidenced in a number of studies on research and development teams and top management teams which are discussed below.

Two recent studies on research and development teams highlight the benefit of having multiple leaders. Hauschildt and Kirchmann (2001) evaluated 133 new innovations within the plant construction and engineering industry and the effects that having multiple "champions," or

leaders, taking on different elements of a leadership role, would have on the technical and financial success of the projects. Their findings indicate that having a set of individuals, taking on different championing responsibilities – specifically, the "power promoter," "technology promoter," and "process promoter" – was beneficial to team outcomes. As more leaders were involved in the development process, gains in performance increased by a factor of 30% to 50%. In a related study, Howell and Boies (2004) evaluated the role of product champions in the R&D process and found that project performance is significantly influenced by the participation of multiple leaders that bring unique skills and expertise to the table. This second research effort speaks directly to the importance of not only having multiple individuals in a leadership capacity, but the importance of selectively utilizing their diverse skills and expertise.

Speaking more generally to the effectiveness of sharing leadership roles are findings in the area of top management teams. Although these efforts often focus on a division of responsibilities, rather than a leader or core leadership team, selectively utilizing expertise within a network, they are critical in demonstrating the benefit of leadership not residing entirely in one individual. This is a central tenet of collective leadership. In a study of top management teams (TMTs), Carmeli and Schaubroeck (2006) demonstrated that the behaviors of a TMT, and in particular the integration of their behavioral roles, were related to positive organizational outcomes. Behavioral integration, as operationalized to include information exchange, collaboration, and joint-decision making, was significantly related to ultimate decision quality ($\beta$ =0.27, $p < 0.01$) which was negatively related to organizational decline ($\beta = -0.56$, $p < 0.01$).

It is important to note that simply having multiple leaders, or a top management team, is not sufficient for positive team and organizational outcomes. Rather, it is the sharing of information, collaboration, and joint-decision making among leaders that is critical. It is anticipated that the effects observed in this study with regard to behavioral integration are related to, and provide support for, the proposition that collective leadership will arise within a network through the effective exchange of information and integration of behavioral roles.

Along these lines, there is evidence to support the proposition that the utilization of diverse expertise and information within a team or network is critical to team and organizational performance. In a recent effort along these lines, Boone and Hendricks (2009) evaluated collaborative behaviors, effective information exchange, and decision-making decentralization within top management teams in relation to the functional diversity of the team. The findings indicate that functional diversity, or varied expertise among members of the top management team, was beneficial unto itself for firm performance. However, the benefits of the diverse expertise were even greater with increased collaborative behaviors and accurate information exchange among team members. Just as the Carmeli and Schaubroeck (2006) study demonstrated that simply having multiple leaders was not sufficient and that behavioral integration was critical to the process, the findings in this study demonstrate that diverse expertise within the network is not entirely sufficient for increasing team performance, but rather, is enhanced through effective information exchange.

The pattern of findings demonstrated through the research on R&D teams, top management teams, and the criticality of behavioral integration, diverse expertise and effective information exchange leads to a very important consideration in developing a framework for conceptualizing collective leadership. Taken together, it is clear from these investigations that the collective leadership process is a very complex, multi-level, dynamic process that emerges at

the cross-roads of a distribution of the leadership role, diverse skills and expertise within the network, and the effective exchange of information among team members in order to capitalize on their expertise. Thus, collectively sharing the leadership role is not only beneficial to team performance, but the utilization of diverse expertise within a team is also important. Before turning to an explicit definition of collective leadership, the predicted mechanisms by which it operates, and its relevant team and organizational outcomes, it is important to first note some critical assumptions of the proposed framework.

**Assumptions of the Proposed Framework**

The first assumption under which this framework for understanding collective leadership operates is that team members are not all created equal. As mentioned previously, much of the research on teams, and the relationship between leadership and team outcomes in particular, assumes that teams are relatively homogenous. In the real-world, however, it is more likely the case that members of a team, and project teams in particular, are bringing diverse areas of expertise to the table. Thus, the current framework assumes that there is a variety of expertise and skill spread throughout a network, and leaders and teams are most effective when this diversity of expertise is used strategically.

The second assumption is that the collective leadership process is information-based. The distribution of information between actors in the network and the exchange of that information is the foundation from which collective leadership emerges. Specifically, for the diverse skills and expertise of individuals to be effectively utilized, it is necessary for critical information regarding the problem to enter the network and be distributed among appropriate network channels, there must be an awareness of the available expertise within the team to solve the problem, and that these needs and available resources must be effectively communicated between actors. As mentioned earlier, evidence of this is presented by Boone and Hendricks (2009) who demonstrated that effective information exchange was a driving force behind the collaboration among top management team members. Thus, it is assumed that information is the medium by which the leadership role is shared among a collective.

The third assumption is that collective leadership, as an emergent process, does not obviate leadership in the more formal sense. The leadership role, whether occupied by one person or several, exists via accountability, and those charged with influencing others toward a collective goal are beholden to a number of constituencies (Yukl, 2009). Thus, the distribution of the leadership role cannot be entirely emergent with no person or collective entity held accountable for the functioning of the group. More centrally, someone must create the team, or network, clarify its objectives, and mediate the relationship between the team and the broader organization. Additionally, in a recent work by Pearce and Sims (2002) it was found that both shared and vertical leadership contribute to team effectiveness and should not be considered mutually exclusive. Thus, it is assumed that there will be an individual or set of individuals acting in a defined leadership capacity that facilitates the conditions for the collective leadership process.

Along related lines, the fourth assumption of the information-based framework is that collective leadership is not static. As different problems emerge, different skills and expertise will be more appropriate. Additionally, there may be shifts in the need for a single leader, multiple individuals sharing the leadership role, or even a shift in the roles that each individual

engages in. Uhl-Bien, Marion, and McKelvey (2007) allude to this general concept in their leader complexity theory in that an adaptive leadership capacity can emerge through the interaction and exchange between individuals with different information. Furthermore, this capacity is dynamic and can be dictated by the situation at any given time.

Given the dynamic nature of the process, and that it involves the sharing and utilization of information among a network of individuals, it is also assumed that team-level processes play a critical role in collective leadership. Collective leadership is not isolated to formally designated leaders and those individuals selected to take on elements of the leadership role. Rather, we must remember that these individuals and the actions they take are embedded within a team and a broader network structure. To illustrate, an individual may emerge as a leader in a given situation due to relevant skills or information that he/she has, and the information possessed by that individual (now acting as the leader) may have come as a result of their centrality within their own network (Mehra, Dixon, Brass, & Robertson, 2006). The team dynamics and flow of information within an individual's network then become an important consideration to understanding the broader collective leadership process. Additionally, it is critical to consider the social and team dynamics that come into play in determining who may be perceived as a leader, who will emerge as a leader, or who may succeed in given situations. Finally, certain team processes may even be preconditions for collective leadership to emerge and be successful. For instance, if there is little interaction among team members, the necessary exchange of information will not be possible (Uhl-Bien et al., 2007). These examples indicate a broader point – collective leadership occurs within a team and thus team-level processes must be taken into account.

The final assumption being made is that collective leadership is not a single "effect" or simple causal chain. Rather, it is a pattern of effects and a system of interactions. The majority of leadership theories identify a set of leader traits or behaviors that lead to specific team processes or outcomes (Hunter, Bedell-Avers, & Mumford, 2007; Yukl, 2009). Given the dynamic, multi-level nature of collective leadership, however, it is nearly impossible to isolate a causal link between leader traits or behaviors and outcomes. Instead, there are several points at which critical moderators play an important role. For instance, research indicates that delegation and empowerment are related to team outcomes such as satisfaction or decision quality (Cotton, Vollrath, Froggatt, Lengnick-Hal, & Jennings, 1988; Yukl, 2008). However, the effect is likely moderated by certain contingencies or performance parameters within the team, such as behavioral integration (Sagie & Koslowsky, 2000). Additionally, there are multiple *paths* through which collective leadership can emerge and lead to outcomes. For instance, given a diverse network of expertise, a leader can exploit information through a direct exchange with his or her followers by tapping his or her personal network, exploiting the broader network, or by working with his or her own personal skills and expertise. Thus, it is assumed that there are multiple mechanisms by which collective leadership may emerge and multiple paths by which it may lead to outcomes. We now turn to a general review of the proposed framework (see Figure 1) followed by a detailed discussion of each construct and propositions regarding the processes by which collective leadership occurs and may lead to critical outcomes.

**Organizational Context (e.g., Professionalism and expertise of workforce, organizational structure, work flow)**

Key Collective
Leadership Constructs

Base-line Leadership and
Team Processes

Outcomes

**Leader Structuring and Maintenance of Group**
(e.g., sensemaking, strategic planning, resource management)

**Mission**
(e.g., define problem, clarify objectives, inspirational motivation)

**Team Processes**
(e.g., process adaptation, coordination, cohesion, commitment)

**Leader Skills and Abilities**
(e.g., intelligence, creativity, experience, wisdom)

**Leader/Team Exchange**
(e.g., delegation, empowerment, shared leadership, voice, sensegiving)

**Team Perf. Parameters**
(e.g., team self-mgmt, collaborative problem-solving, info sharing, conflict mgmt)

**Team Performance Capabilities**
(e.g., adaptive performance, collective efficacy, info sharing)

**Team Affective Climate**
(e.g., group affect, regulation of group emotion, affective norms)

**Communication**
(e.g., consultation, feedback, direction giving language, mode of communication)

**Immediate Outcomes**
(e.g., decision acceptance, productivity, follower satisfaction, follower trust)

**Leader Network**
(e.g., connections between actors, centrality, boundary spanning)

**Team Network**
(e.g., connections between actors, density, familiarity, exposure)

**Problem Setting**
(e.g., complexity, ambiguity, resource availability, social support)

6

**Long-Term Outcomes**
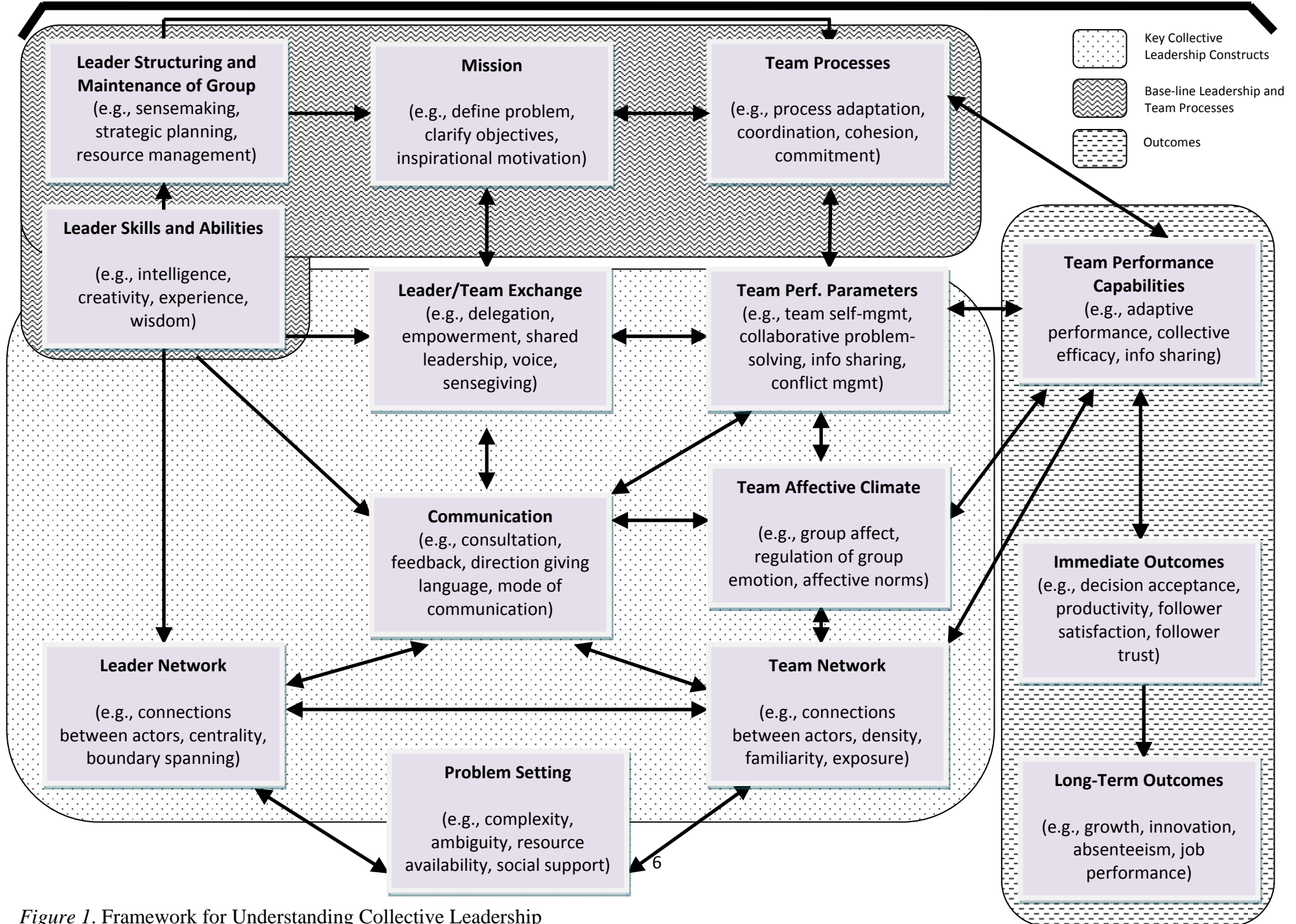(e.g., growth, innovation, absenteeism, job performance)

*Figure 1*. Framework for Understanding Collective Leadership

**Framework Overview**

Before turning to a detailed review of each construct within the proposed framework, and the subsequent propositions regarding the relationships between concepts, it is helpful to first provide an overview of the framework and the pattern of relationships between the sub-elements. Additionally, it should be noted that the proposed framework is a snapshot of how collective leadership may arise for a single collective around a single event or problem. The framework presented in Figure 1 consists of four main components: 1) the key collective leadership constructs, 2) the base-line leadership and team processes, 3) the outcomes, and 4) the setting and context the process occurs within. The first three components are indicated by different shaded boxes, and the fourth component is indicated by the bracket at the top encompassing the whole framework, and the individual problem setting box at the bottom. Generally, the base-line leadership and team processes serve as the foundational structure upon which collective leadership emerges. The elements of this section, leader skills and abilities, leader's structuring and maintenance of the group, mission, and team processes, are all constructs typically found in traditional, hierarchical models of leadership (Day, Gronn, & Salas, 2004; Mumford et al., 2000; Stogdill, 1974) and, themselves, form a path by which leadership influences team outcomes.

Leader skills and abilities, or the leader's personal skills and abilities that may affect personal and team performance, are related to the base-line path, influencing the way in which leaders engage in the structuring and maintenance of the group. The leader's skills and abilities also have a direct impact on how the leader interacts with his or her network (Balkundi & Kilduff, 2005), the exchange that takes place between the leader and the team (Boies & Howell, 2006), and the communication that takes place between actors (Sagie, 1996), which may all influence whether and how collective leadership emerges. The leader's structuring of the group includes leader strategies and behaviors used to structure the group for better performance on a particular task or to work towards a particular goal (Mumford & Hunter, 2005). This then leads to the "mission" in which the goal or objective that a leader and group are working towards is defined (Mumford et al., 2000). As demonstrated in the diagram, the defining of the mission is not only influenced by the leader's actions to structure the group, but also developed through an open exchange between the leader and the group. Defining the mission is also influenced by team processes which are the last element of the broad base-line component. Team processes include interactional aspects of the team such as coordination, cohesion, or commitment (Day et al., 2004), that impact parameters of the team's performance or the team's performance capabilities, ultimately leading to immediate and long-term outcomes.

Building upon the foundational aspects of the base-line leadership and team processes, the key collective leadership constructs are responsible for setting the stage for collective leadership to emerge. The leader-team exchange constructs speak to the exchange relationship between the leader and team, and the behaviors that lead to that exchange. These constructs include much of what is typically considered to be shared, distributed, or collective leadership which are all, essentially, an exchange of the leadership role between the leader and members of the team. This exchange is also influenced by communication, which is a central construct in the collective leadership phenomenon.

Information is the currency of collective leadership, and communication is the means by which information is exchanged. Through communication, the leader exchanges information with the team, which serves to shape team parameters and affective climate (Boone & Hendricks,

2009; Pirola-Merlo, Hartel, Mann, & Hirst, 2002; Uhl-Bien et al., 2007). Team performance parameters are elements of the problem, characteristics of the team, or leader and team perceptions that direct or restrict the performance of the team (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Pittinsky & Simon, 2007; Taggar & Ellis, 2007). These parameters also facilitate a team's capabilities and outcomes achieved. These parameters can be influenced by basic team processes, the leader-team exchange, communication within the network, and the affective climate. The affective climate, which includes the general emotional condition, norms, and regulation capacities of the team (Barsade & Gibson, 2007; Pirola-Merlo et al, 2002), influences communication, conditions within the team's network, team performance parameters, and directly influences team outcomes.

Leader and team network constructs comprise the final elements of the collective leadership framework. The leader network is the pattern of interpersonal connections that the leader develops and maintains. The team network is the pattern of interpersonal connections that the team members are a part of (Balkundi & Kilduff, 2005; Borgatti & Foster, 2003; Sparrowe & Liden, 2005). Naturally, the leader's network is tied to the team's network and both are influenced by communication within the network. Additionally, the team network may be influenced by the affective climate and may also have a direct impact on team performance capabilities. They are also both directly influenced by the setting in which the process takes place and serve as an entrance point by which information from the setting is translated into the network. The setting includes aspects of the environment that may influence the process by which collective leadership occurs with effects entering the system as interpreted through the networks of the leader and team members.

The third main component of the framework is made up of the outcomes of the collective leadership process including team performance capabilities, immediate outcomes, and long-term outcomes. Team performance capabilities are an initial, first-level set of outcomes that are qualities of a team or its members that dictate the extent to which a team is able to complete tasks (Cohen & Bailey, 1997; Day et al., 2004; Gronn, 2005; Kickul & Neuman, 2000; Uhl-Bien et al., 2007). Essentially these capabilities are proximal outcomes of the collective leadership process, but at the same time become antecedents to immediate and long-term outcomes. These capabilities are influenced by general team processes, team performance parameters, the affective climate of the team, and the team's network. Immediate outcomes are outcomes that emerge directly from group processes that may be temporary in nature or may ultimately transition into long-term outcomes. Long-term outcomes are persistent group and organizational level outcomes that emerge from team performance.

Finally, it is critical to consider the context within which the collective leadership process is taking place. Specifically, this includes elements in the organization and the external environment that can both foster and hinder the general capacity for collective leadership to emerge. For example, availability of resources and professionalism of members of the organization (Mumford, Bedell, & Hunter, 2008) can directly impact whether a team needs, or is able, to selectively distribute elements of the leadership role among multiple individuals. We turn now to a detailed review of each of the constructs within the framework and their interrelationships, along with propositions regarding the effects and interactions between these constructs.

<center>**Framework Review and Propositions**</center>

In reviewing the components of the proposed framework, we will first begin with the core elements or the constructs that generally constitute collective leadership. The theoretical and empirical basis for each will be discussed along with known effects relevant to other components of the framework. It is important to note, however, that some components are relatively weak in theoretical and empirical support and thus propositions with regard to these constructs will be broader in nature. In comparison, propositions regarding relatively well developed areas will focus on more specific relationships. We turn now to the key collective leadership constructs – leader-team exchange, communication, team network, leader network, team performance parameters, and affective climate.

## Key Collective Leadership Constructs

**Leader-Team Exchange.** Working under the assumptions that collective leadership emerges via the distribution and selective utilization of information and expertise, and that collective leadership does not obviate more formal leadership channels, there must, then, be an element of exchange between the leader, or leaders, and the team. Existing research on the distribution of the leadership role (Gronn, 2005; Yukl, 2008), exchange relationships between leaders and followers (Boies & Howell, 2006; Brower, Schoorman, & Tan, 2000), and communication patterns and shared leadership among team members and team leaders (Carson, Tesluk, & Marrone, 2007) seem to indicate three general components of the exchange that take place between leaders and their teams related to collective leadership. These components are a logistical exchange of leadership roles, exchange behaviors that are relational in nature, and elements that create conditions for exchanges between leaders and followers.

Most definitions of shared, distributed, or collective leadership tend to approach it from a logistical standpoint. In general, this approach asserts that particular behaviors, roles, or tasks are, formally or informally, divided among team members or individuals serving in a leadership capacity (Carson et al., 2007; Gronn, 2002; Konczak, Stelly, & Trusty, 2000). The process by which this logistical division takes place is often talked about in terms of empowerment (Konczak et al., 2000), delegation (Leana, 1986), or more generally in terms of sharing responsibilities (Pearce, Manz, & Sims, 2008). Collective leadership, as the selective use of expertise, may manifest in an explicit distribution or delegation of responsibilities to those with relevant knowledge or expertise. Each of these sets of behaviors are viable exchange avenues between leaders and teams in terms of activating collective leadership, and each has been shown to be related to other critical team processes or outcomes.

Two studies evidence the role of empowerment or shared responsibilities in team processes and collective leadership. Konczak, Stelly, and Trusty (2000) evaluated elements of empowering leader behaviors that include delegation of authority, accountability, self-directed decision making (similar to more specific definitions of empowerment), information sharing, and skill development. Each of these empowering leader behaviors were significantly related to the job satisfaction and organizational commitment of team members, which are outcomes critical to both team processes and organizational outcomes. Similarly, findings by Carson et al. (2007) indicate that the degree to which leadership is shared amongst a team, measured as the perceived dispersion of leadership responsibility among the team network, is related to the team's internal environment, including shared purpose, social support, and voice ($r$ (57) = .33, $p$ = <0.05), which

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are also elements of team processes and outcomes proposed to be relevant to collective leadership.

Another logistical element of leader-team exchange includes the functions of consultation (Yukl & Fu, 1999), and implementing and revising solutions (Mumford, Friedrich, Caughron, & Byrne, 2007). These elements are a more subtle utilization of others' expertise than simply distributing responsibilities; however they are still direct actions that constitute an exchange between leaders and the team. Research by Yukl and Fu (1999) indicates that consultation is related to problem clarification and monitoring of problems which are team processes critical to solution success (Mumford et al., 2007). However, of particular interest with regard to collective leadership, they found that leaders' consultation with their subordinates was positively related to their followers' competence ($r$ (390) = .16, $p < 0.01$), goal congruence ($r$ (389) = .32, $p < 0.01$), and job level ($r$ (386) = .13, $p < 0.01$), which suggests that leaders selectively utilize, or consult with, individuals that have a shared understanding of the situation, and who possess the requisite competence and job experience to participate in the leadership process.

Along with consulting team members, leaders often include others in the implementation and revision stages of problem solving. Open exchange during this process provides opportunities for the selective use of expertise which is particularly important for the complex problems that leaders face (Mumford et al., 2007). Utilizing other's input in the implementation, evaluation, and revision of problem solutions will likely benefit both the problem solution (Friedrich & Mumford, 2009) and long-term development of subordinates (Yukl, 2009). Given the arguments presented with regard to logistically oriented leader-team exchanges we make the following proposition:

**Proposition 1: Logistical exchange relationships between a leader and a team, in which the leadership role is dispersed and team members are included in problem solving, will enhance understanding and alignment with the team mission, and overall group performance.**

In addition to exchanges that lead to a logistical distribution of the leadership role, there are also relational, or interpersonal, leader-team exchanges that not only influence logistical exchanges but also influence and set the stage for collective leadership. Over the years there has been extensive research conducted on the antecedents and outcomes of leader-member exchange (LMX) relationships (Boies & Howell, 2006; Hooper & Martin, 2008; Schriesheim, Castro, & Cogliser, 1999). This research, however, focuses predominantly on dyadic relations, and as such, there has been relatively less research on how these relational exchanges occur within the context of the team. It is anticipated, though, that research on LMX and other relational theories of leadership (Brower et al., 2000; Uhl-Bien, 2006) may shed some light on how leader-team relational exchanges may operate with regard to collective leadership.

An important series of findings emanating from the body of research on LMX is that the relationship between leaders and followers is an ongoing, mutual "test" in which leaders and followers build trust with one another (Yukl, 2009). Specifically, leaders give followers responsibility and as the followers incrementally prove themselves responsible and trustworthy, whether it is accomplishing tasks or serving as a confidante, and the leader provides the follower with some sort of interpersonal reward, a relationship between the leader and follower develops (Brower et al., 2000). As may be expected, research indicates that individuals that develop a

trusting or "high LMX" relationship with the leader are likely to be given more responsibility (Graen & Uhl-Bien, 1995). Thus, it is anticipated that at the team level, the development of interpersonal exchange relationships that lead to mutual trust between the leader and the team members will be related to logistical exchange relationships. Along these lines, research by Boies and Howell (2006) indicates that the mean level of LMX within a team is positively related to team potency, or a team's capacity for success. Thus, as a team's aggregate relationship with a leader increases, the more likely the team is to take on distributed responsibility.

It is important to note here, however, that although this prediction is at the aggregate team level, the leader is likely forming different levels of interpersonal exchange relationships with followers. This consideration has important implications for team dynamics and processes that may impact collective leadership. Specifically, studies by Boies and Howell (2006) and Hooper and Martin (2008) indicate that when team members perceive differences in relationships among team members, it can result in negative team outcomes such as team conflict, and decreased satisfaction and decreased well-being. In turn, these outcomes may impact the team's cohesion, coordination and trust, among other team process, which are important for the emergence of collective leadership. Given these findings, the relational exchange between a leader and the team can have positive implications for distributing responsibilities and whether the expertise of followers will be utilized. However, the perception of discrepancies among team members may undermine critical team processes relevant to collective leadership. Ultimately, characteristics of the relational leader-team exchanges will have both direct effects on team processes and outcomes, but they will also likely moderate the relationship between logistical exchanges and outcomes.

**Proposition 2: Positive relational exchanges between a leader and a team will be positively related to logistical exchanges, team processes and outcomes of collective leadership.**

**Proposition 3: Perceptions of differential relational exchanges between the leader and other team members will undermine team processes and outcomes of collective leadership.**

**Proposition 4: Relational exchanges will moderate the relationship between logistical leader-team exchanges and team processes and outcomes of collective leadership.**

A final element of this component of the proposed framework includes a set of actions that, if taken by the leader, may facilitate leader-team exchanges. Specifically, the leader may encourage contact among members and with him or herself (Pittinsky & Simon, 2007; Uhl-Bien et al., 2007), create expectations for collaboration (Taggar & Ellis, 2007), ensure that team members are given a voice in team processes (Carson et al., 2007), and engage in sensegiving (Foldy, Goldman, & Ospina, 2008). The facilitation of interactions is critical for the emergence of both logistical and relational exchanges, and subsequently for the collective leadership process as a whole.

There is research that indicates increased contact among team members may lead to levels of cohesion and in-grouping that could be detrimental to inter-group relations and problem solving (Pittinsky & Simon, 2007). However, it is clear that in order for exchanges, both logistical and relational, to occur, it is necessary that individuals within the group engage one another. Additionally, by utilizing multiple leaders that can present different views and directives

as is needed, groups may be less likely to become overly cohesive to the point of reduced inter-group interactions. Uhl-Bien et al. (2007) assert that it is a critical function of leadership to facilitate connections so that information exchanges may take place, which as discussed previously, is critical for the selective use of expertise in collective leadership efforts. Similarly, the leader can create conditions conducive to leader-team exchange by encouraging collaboration. In a study along these lines, Taggar and Ellis (2007) found that a leader's expectations with regard to collaboration was positively related to team problem solving norms ($r$ (54) = .26, $p < 0.05$) which ultimately influenced the problem solving behaviors of team members.

Along related lines, Carson, Tesluk, and Marrone (2007) conducted a study of shared leadership among 59 consulting teams, and found that voice, or when team members are permitted to participate in problem solving, was positively related to shared leadership ($r$ (57) = .33, $p < .05$) when the leader and team members possess a shared purpose and engage in social support. Although the findings with regard to leaders encouraging contact, creating collaboration expectations and giving members a voice may seem straightforward, they are nonetheless critical to facilitating the exchange between leaders and team members. The final action that leaders can take to facilitate leader-team exchange is sensegiving.

Sensegiving, or "shaping how people understand themselves, their work, and others engaged in that work" (Foldy et al., 2008, pg. 514), is a mechanism leaders can use to ensure team members possess a common understanding of the problem and the goal. By creating a common understanding, the leader creates an environment in which individuals can communicate clearly. In related studies on creative problem solving efforts in teams, a common foundation from which to build (e.g., common understanding of the problem) is necessary for the team to incorporate multiple sources of ideas (Friedrich & Mumford, 2009). Thus, prior to the distribution of the leadership role or engaging in the selective use of expertise within the network, it would be advisable that a leader engage in sensegiving. In this regard, sensegiving will likely moderate the relationship between logistical leader-team exchanges and team outcomes.

**Proposition 5: The leader's encouragement of contact among team members, creating expectations for collaboration, and providing team members a voice in problem solving will facilitate both logistical and relational leader-team exchanges.**

**Proposition 6: The leader engaging in sensegiving will facilitate leader-team exchanges and will moderate the relationship between logistical exchanges and team outcomes.**

**Communication.** It is clear, at this point, that for collective leadership to occur there must be an exchange between team members, and particularly between a leader and team members. In order for this exchange to occur, however, there must be communication. Communication is the movement of information throughout a network and is a prerequisite for members understanding where critical knowledge and expertise exists in the network, where problems are, and is critical to a collection of individuals operating under a shared understanding of the group's goals (Mayfield & Mayfield, 2007; Mumford & Hunter, 2005; Yates & Orlikowski, 2002). Due to the importance placed on communication, the proposed framework identifies communication as influencing each of the core collective leadership constructs (see Figure 1).

As central as communication is, however, there is relatively little research on communication in the context of collective leadership. Although there has been some work on the communication style or rhetoric of leaders and how the content of communications can be used to influence followers (Awamleh & Gardner, 1999; Bligh & Hess, 2007; Bligh, Kohles, & Meindl, 2004), there is a void in the study of communication among individuals in a shared or collective leadership context. There are several areas of research, however, that are relevant to this concept. For instance, there is research on consultation, feedback, direction-giving language, and communication norms. Research in these, and other relevant areas falls into three categories; 1) communication that involves an exchange between two parties, which we refer to as bi-directional communication (e.g., consultation, feedback exchange, information sharing), 2) communication directed from one person to another, uni-directional communication (e.g., direction giving language, empathetic language, meaning-making language), and 3) logistical elements of communication (e.g., mode of communication, communication norms).

It was mentioned in the discussion of the leader-team exchange construct that actions taken by a leader to consult with followers could be considered a logistical distribution of the leadership role. In addition to being a method for distributing leader actions, consultation is, at its core, a form of communication and, specifically, a bi-directional communication pathway. It provides subordinates and other team members with a voice and functions as an open exchange between two parties to access information (Yukl & Fu, 1999). In addition to the exchange and collection of information, consulting others can also play a role in the degree of learning and development taking place in a group. First, consulting with others increases the likelihood that participants in the consultation will ultimately support the action. Second, followers participating in knowledge sharing will likely be more satisfied with the process and their job as a whole (Yukl, 2009). Each of these is relevant to the team processes, performance parameters, or affective climate constructs of collective leadership that will be discussed later.

Where consultation is bi-directional communication that occurs at the beginning or during problem solving, an equally important form of bi-directional communication often occurs after problem-solving. Exchanging feedback has generally been recognized as a valuable, although complicated, endeavor whose outcomes depend on multiple variables (Ilies & Judge, 2005; Kluger & DeNisi, 1996; Latham & Locke, 1991). Research on 360 degree feedback has provided empirical information on the communication of feedback across all levels rather than just top-down (Smither, London, & Reilly, 2005) and the findings suggest that effective communication of feedback, across levels, is related to team learning and development (Garavan, Morley & Flynn, 1997). In addition, feedback has been shown to lead to team members better understanding group goals (London & Smither, 1995). Through the use of feedback, leaders can encourage the development of knowledge and skills within the network that may prove valuable for utilizing varying expertise in collective leadership. Clear group goals are also critical when there are multiple individuals leading others to achieve a goal who must have a shared understanding of desired outcomes.

While consultation and feedback can be considered to be a complex form of bi-directional communication, direct information sharing is a simple and explicit communication exchange. Where consultation implies seeking out opinion or expertise, and feedback implies providing objective or subject judgments, information sharing is a simple exchange or distribution of information that individuals within the network possess (Gruenfeld, Mannix,

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Williams, & Neale, 1996). Research on information sharing among group members indicates that it is positively related to group performance and may even reduce task and interpersonal conflict (Moye & Langfred, 2004). It is also important to note that by participating in any form of bi-directional communication, members of the group are likely to perceive group processes as fair (Yukl, 2009) which would contribute to a positive affective climate.

**Proposition 7: The use of bi-directional communication will be positively related to leader-team exchange and the selective use of information and expertise.**

**Proposition 8: The use of bi-directional communication will be positively related to the development of the knowledge and skills of team members.**

**Proposition 9: The use of bi-directional communication will be positively related to the team's affective climate vis-à-vis justice perceptions.**

In addition to bi-directional communication, unidirectional communication, communications directed from one party to another, can have a significant influence on group processes related to collective leadership. Specifically, three forms of this top-down form of communication have been shown to be related to follower motivation (Mayfield & Mayfield, 2007). The processes are direction-giving language, meaning-making language, and empathetic language.

Mayfield and Mayfield (2007) describe these three forms of language in terms of a leader's motivating language. Central to collective leadership, these types of language can be used differentially to achieve different group outcomes. Direction-giving language is used to clarify expectations and goals, meaning-making language is used to communicate values and cultural aspects of the group or organization, and empathetic language is used to demonstrate compassion and emotion (Mayfield & Mayfield, 2007). Providing direction, initiating structure, and clarifying roles and objectives (direction-giving language) is related to critical team performance parameters such as a shared understanding of the goal and role clarity (House & Mitchell, 1974), which is likely to facilitate collaboration among team members, particularly those sharing a leadership role. Communicating values and norms (meaning-making language) is critical for a wide variety of team processes and collective leadership as a whole. For example, communicating that the organization values sharing the leadership role would lay the foundation for collective leadership to emerge. Organizational and group norms communicated through meaning-making language are expected to moderate collective leadership processes relevant to the norms being communicated. For instance, the communication of affective norms will likely moderate the influence that affective climate has on team performance parameters. Finally, appropriate use of empathetic language is expected to be positively related to the affective climate of the team by supporting the expression of emotion.

**Proposition 10: Uni-directional, direction-giving language will be positively related to setting team performance parameters.**

**Proposition 11: Uni-directional, meaning-making language will moderate the collective leadership processes to which the norms are relevant.**

**Proposition 12: Uni-directional, empathetic language will be positively related to team affective climate.**

Both bi-directional and uni-directional communication and the forms of communication that fall under them are related to critical elements of collective leadership. These relationships may be moderated by functional aspects of the team's communication patterns. Specifically, the mode of communication and the team's norms for communication may impact the influence that these types of communication have on other collective leadership constructs such as leader-team exchange, team performance parameters, or affective climate.

With the onset of the information age, there has been a rapid proliferation of research on different modes of communication (e.g., verbal versus electronic communication) (Al-Hawamdeh & Hart, 2002). There is very little research, however, on how different modes of communication may impact how the content of a message influences processes such as collective leadership. It is anticipated that characteristics of the team's network structure, characteristics of the task or problem, and the degree of task interdependence of team members will all be related to the mode of communication used. For instance, a network that has a wide range of autonomous members would likely not utilize word-of-mouth modes of communication like a densely interconnected team might.

In addition to mode of communication, communication norms may also moderate the relationship between types of communication and different collective leadership constructs. For instance, in an organization in which it is the norm that feedback is always provided in a top-down manner, there may be no relationship between feedback exchange and collective leadership. Another example may be an organization that has strong norms with regard to discouraging the communication of emotions. In this case there will likely be a weak relationship or no relationship between empathetic language and the team's affective climate.

**Proposition 13: The mode of communication used will be related to characteristics of the team network, the task or problem the team is facing, and the interdependence within the team.**

**Proposition 14: Communication norms will moderate the relationship between communication and relevant collective leadership constructs, for instance, leader-team exchange, affective climate, and leader and team networks.**

**Leader Network.** If information is the currency of collective leadership (expertise being a form of information), and communication is the method of transfer, then networks are the channels through which it is accessed and exchanged. Over the last 10 years there has been a significant increase in the study of social networks (Kilduff & Tsai, 2006; Sparrowe, Liden, Wayne, & Kraimer, 2001) particularly with regard to their implications for leadership processes such as emergence, informal leadership, and leader performance (Balkundi & Harrison, 2006; Carroll & Teo, 1996; Mehra et al., 2006). More recently and more central to collective leadership, research has begun to focus on leaders' skill in interpreting networks, as well as how leaders interact with and use their networks (Burt & Ronchi, 1990; Krackhardt, 1990; Sparrowe & Liden, 2005). To understand how the leadership role may be distributed through the selective use of expertise within a network, it is critical to understand how leaders interpret and interact with their networks and how structural characteristics of the leader's network influence these processes.

There are critical leader capacities related to the role that a leader's network plays in collective leadership. Clearly, a leader's ability to recognize and accurately interpret relevant characteristics of a social network, often referred to as network cognition (Kilduff & Tsai, 2006), will moderate whether structural or content characteristics of the network influence the leader's approach to communication with team members. Additionally, other leader capacities such as wisdom or experience may moderate the degree to which leaders use their network rather than relying on their own available information. It is important to recognize that not all leaders will interpret and use a network in the same way.

In evaluating the literature on social networks, there are two general categories of network variables that are relevant to collective leadership. These categories are structural characteristics of the network (e.g., connections between actors, network size, leader centrality), and the content and functional characteristics of the network (e.g., dispersion of information, leader's exposure to the network, boundary spanning) (Balkundi & Harrison, 2006). Variables within these two categories are proposed to influence both the team network and communication constructs. In addition, both the leader's and the team's networks are proposed to be the entry point for information from the outside system.

In their work on general social networks and the social network of leaders, Balkundi and Kilduff (2005) and Kilduff and Tsai (2006) outline several structural characteristics of networks and of leader networks in particular. Specifically, the connections among actors, centrality of the leader among the connections, density of the connections between actors in the leader's network, embeddedness of the relationships between actors, the range of connections within the network (individuals that are not interconnected to one another), network stability, and network size are proposed by the authors to all be related to team outcomes such as performance, and leader emergence and influence. Additionally, other research indicates that the diversity of actors within a network (Müller, Nordt, Lauber, & Rössler, 2007) may influence group processes ultimately related to the emergence of collective leadership.

Although this area of study is relatively new, several early studies indicate that these structural elements are related to variables relevant to collective leadership. For instance, in a meta-analysis on the relationship between leader and team networks and team viability and performance, Balkundi and Harrison (2006) found that a leader's centrality was related to the team's task performance. Although the mechanism behind that relationship is unclear from the study, it is likely that being a "hub" of information allows an individual to both efficiently influence others and gives them access to multiple sources of information. These two outcomes of centrality are likely important to both collective leadership processes and performance overall. Additionally, Sparrowe and Liden (2005) found that leaders may serve as sponsors of group members by sharing influence and responsibility with them. However, it appears these processes are moderated by the leader's centrality in the network.

In addition to influencing how the leader accesses and interprets information, the structural characteristics of the network will also likely impact the logistical elements of communication. For instance, if a leader is not central within his or her network, he or she may have to take more indirect routes to communicating messages to the group. Along related lines, if the leader is central to the network, he or she may be able to rely more on informal modes of communication (e.g., talking with team members) rather than formal methods (e.g., memos or announcements). Another example of structural effects on communication is if the leader's

network is very hierarchical, there may be less bi-directional communication than in a less hierarchical network, which may then reduce the capacity for collective leadership.

**Proposition 15: Structural characteristics of the leader's network will moderate the leader's perception, interpretation, and use of the network in the collective leadership process.**

**Proposition 16: Structural characteristics of the leader's network will be related to the type and content of communication the leader uses with members in the collective leadership process.**

Structural characteristics of the leader's network have a more indirect effect on collective leadership, by way of influencing communication and the leader's ability and strategy for using information in the network. The content of the network and patterns of information flow in the network are likely more directly related to the emergence of collective leadership since it is more directly related to when and how information and expertise can be extracted from members within the network (Kilduff & Tsai, 2006). Content and access variables include boundary spanning (the degree to which the leader's connections bridge the team to outside networks), dispersion of information in the network, how much the leader is exposed to his or her network, availability of informal information, and reciprocity (agreement between two actors that there is a connection) (Balkundi & Kilduff, 2005). More generally, the leader's network is a valuable resource for gathering information (Mumford et al., 2000). These characteristics and functions become critical in collective leadership by dictating how information is communicated among team members and how leaders ultimately exploit that information to bestow responsibilities upon those with the requisite expertise.

In a study along these lines, Mehra et al. (2006) evaluated leaders' centrality in both their internal team network, and also their external network of other group leaders. Connections to external networks can also be considered boundary spanning because the leader is bringing information from the external network into the internal network. The findings indicated that leader centrality among their leader peer network (the external network) was positively related to their team's performance. The authors propose that this is because these leaders are better connected to bring in information and resources to their team. It is evident from this study that a leader's personal network, and their interactions with it, has implications for the team.

**Proposition 17: Content and interactional characteristics of a leader's network will moderate the leader's communication with members in exchanging information and distributing the leadership role.**

**Team Network.** In addition to the leader's personal network, the network among team members also plays a critical role in collective leadership. Again, the network is the structure through which information is exchanged allowing expertise to be selectively utilized. The team's network is conceptually separate from the leader's network because the team's network has a different relationship to the other elements of collective leadership. Although both influence, and are influenced by, communication, the team's network is more directly related to affective climate and team performance capabilities, an outcome of collective leadership. Thus, as might be expected, much of the network characteristics, both structure and content, already reviewed

are similar between the two networks. However, the mechanisms by which they influence the collective leadership process are different.

In a recent study on networks, Balkundi and Harrison (2006) evaluated the relationship between leaders' and members' network structures and member commitment, team viability, and team performance. The study provided several important insights. First, dense team networks were related to increased commitment and better performance which are a performance parameter and team outcome, respectively, in the proposed collective leadership process. Additionally, the team's centrality among other teams was positively related to increased performance and it appears that group networks that facilitate information flow were positively related to future performance. Both of these are performance capabilities in the framework of collective leadership. Thus, it appears that the mechanism by which some of these team capabilities emerge may be related to the structure of the team's network.

There are also elements of the team structure that relate more directly to the selective use of expertise. As Sparrowe and Liden (2005) found in a recent study on leader-member exchange (LMX) and social networks, members who have a respected status with the leader and who have a leader that is central within an advice network are more likely to have influence within the network. Thus, not only is there an interaction between the connections that team members have and the leader's personal network, but the networks may influence how and to whom the leader distributes the leadership role.

**Proposition 18: Structural characteristics of the team's network will influence and be influenced by structural characteristics of the leader's network.**

**Proposition 19: Structural characteristics of the team's network will be related to the access and use of information from the network vis-a-vis communication which will facilitate collective leadership.**

Unlike the structural characteristics of team networks, the content characteristics of team networks related to collective leadership is different from the set related to leader networks. Specifically, the content and interactional characteristics of team networks that are relevant to collective leadership are information gathering, knowledge of other members' networks, familiarity and exposure to the network. Information gathering within the team network is relevant to collective leadership because the gathering and distribution of information and knowledge throughout the network would likely increase the awareness of where expertise lies in the network. This process would then facilitate the selective use of expertise in distributing the leadership role. In a study along these lines, Rulke and Galaskiewicz (2000) found that network connections through which information is shared influence how knowledge is used in the group. Specifically, they found that decentralized networks (with a broad range of connections) facilitated the use of diverse knowledge distributed within the network and knowledge distribution was related to group performance.

Knowledge of others' networks, exposure to the network, and familiarity with other actors in the network are proposed to have similar and related effects on collective leadership. Specifically, as members are increasingly exposed to their networks, become more familiar with one another, and are aware of each other's networks they are better able to interpret and utilize their networks and the information in it. The increased efficiency in interpreting and interacting

with the network would likely impact communication patterns and ultimately team performance parameters, and subsequently build capacity within the team for activating collective leadership. Additionally, exposure, familiarity and knowledge of one another's networks will likely facilitate interpersonal understanding and support within the network. Understanding and support within the network could then influence emotion regulation and regulation of stress, and ultimately improve the affective climate of the group.

**Proposition 20: Information gathering within a team's network will be related to the leader's communication with members in exchanging information to facilitate collective leadership.**

**Proposition 21: Knowledge of other members' networks, familiarity and exposure to the network will facilitate the members' use of the network and communication of information to engage in collective leadership.**

**Proposition 22: Knowledge of other members' networks, familiarity and exposure to the network will be positively related to the team's affective climate, and ultimately fostering collective leadership.**

      **Team Affective Climate.** Over the last couple of decades, research on emotions and affect in organizations has become a popular area of study. The majority of research supports the idea that an individual's affect can have a significant influence on many aspects of their performance, such as creativity, decision-making, and pro-social behaviors, among others (Barsade & Gibson, 2007). Although significant work has been done on affect, it is less clear how it operates at the group level (Kelly & Barsade, 2001) and, even more ambiguous, is how affect might influence collective leadership processes. Some progress has been made in evaluating the role of affective climate in organizations (Pirola-Merlo et al., 2002). Climate is a set of shared attitudes or expectations that a team has with regard to a specific context (e.g., climate for creativity, climate for safety) (Schneider, 1990) and thus, affective climate refers to a team's shared affective experience or tone (Pirola-Merlo et al., 2002)**.** Climate has been included in the proposed framework of collective leadership because research indicates that there is a relationship between affect and relevant collective leadership concepts such as relational exchanges, feedback, contribution, conflict, and support networks (Ashkanasy, Härtel, & Zerbe, 2000; Sonnentag & Frese, 2003). Specifically, three aspects of a group's affective climate are anticipated to play a role in collective leadership: characteristics of the group's affect, stress conditions, and justice perceptions.

      Group affect is, to some extent, a convergence or aggregation of the affect of team members. While individuals bring their own trait affect and state affect to the team, affect can be transmitted through groups via mood contagion (Barsade, 2002). Therefore, not only is a group's affect a sum of individual's affect but a collective mood that can be spread among each other. In this regard, network characteristics and interaction would influence this process of affect transmission. Outcomes of group affect are also likely to influence the collective leadership process. For instance, it has been found that positive group affect is related to increases in cooperation and decreases in conflict, which are two important team performance parameters (Barsade, 2002). On the other hand, teams that were affectively diverse and had a low aggregate positive affect have been shown to be more likely to experience emotional conflict and less

likely to have cooperation among team members, which are also relevant team performance parameters. (Barsade, Ward, Turner, & Sonnenfeld, 2000).

It is important to note that affective climate can be influenced directly by leadership (Pirola-Merlo et al., 2002). Specifically, leaders can create organizational norms, especially for emotional expression (Barsade & Gibson, 2007), that create conditions to foster a positive affective climate. Also, along those lines, leaders may engage in meaning-making language, a form of communication discussed previously, that can frame affective events and help team members regulate their affective response, another team performance parameter (Pirola-Merlo et al., 2002).

**Proposition 23: The team's positive collective affect will positively influence team performance parameters that will facilitate collective leadership.**

Like individual level affect, a team's general affect is susceptible to emotional influences including stress. There are several sources of work related stress that have been shown to impact individual and group affect, such as physical stressors, work stress, interpersonal stress, traumatic events, stressful change processes, and emotional labor (Sonnentag & Frese, 2003). Three sources of stress are expected to be relevant to the affective climate of a team: job stress, interpersonal stress, and work-life conflict. Job or work stress is a general term that encompasses a number of factors that may cause an individual or team to feel stress as a result of work related activities or events. Examples of job stressors include time pressure or work overload. A team also may experience work-related stress and the individual affective response of individuals to the stressor will likely impact the overall affective climate. The team may respond in a similar fashion to sources of interpersonal stress, such as conflict among team members (Sonnentag & Frese, 2003).

The effect of work-life balance on team processes has garnered increasing attention in the literature. A recent meta-analysis by Judge and Colquitt (2004) indicated that there is a relationship between justice perceptions and stress, with work-life conflict mediating this relationship. In a related study, Beauregard and Henry (2009) evaluated the work-life stress experienced by individuals and found a relationship to low satisfaction and commitment, decreased performance, and increased turnover and absenteeism. While these studies looked at the impact of work-life conflict on individual level performance outcomes, it is likely these outcomes would manifest and ultimately impact team level performance processes and outcomes. Each of these outcomes would have important implications for other members of the individual's team and would ultimately place stress on the team and impact the team's affective climate. On the positive side, however, research indicates that social support, which may emerge within a team's network, can mitigate the effects of stressors (Cohen & Syme, 1985). It is likely that as exposure and familiarity increase within the network, the level of social support provided by the network increases.

**Proposition 24: Stress experienced by individuals, and the team as a whole, will negatively influence the team's affective climate and reduce the capacity for collective leadership.**

**Proposition 25: The relationship between social support and affective climate, and collective leadership, will be moderated by characteristics of the team's network.**

The final element of a team's affective climate anticipated to be related to collective leadership is justice perceptions, or the overall impression of fairness, among team members. Specifically, it is proposed that team members' perceptions of distributive, procedural, informational, and interactional justice will be related to the overall affective climate of the team. Distributive justice refers to whether individuals perceive that the distribution of outcomes or rewards was fair. Perceptions of procedural justice refer to impressions that the processes used to determine outcomes or distribute rewards were fair. Perceptions of interactional justice refer to the impression that self and others are treated fairly in a more interpersonal sense. Informational justice refers to the perceptions of fair distribution of information and resources among individuals within the team (Cohen-Carash & Spector, 2001; Cropanzano & Greenberg, 1997; Mitchell & Daniels, 2003).

Perceptions of injustice can lead to negative outcomes. Specifically, research indicates that perceptions of injustice resulted in negative motivational reactions (Mitchell & Daniels, 2003), stress, and negative affective reactions (Colquitt & Judge, 2004). At the team level, perceptions of injustice may lead to resentment and interactional stress among team members, which would negatively impact the team's affective climate. In a research effort along these lines, it was found that perceptions of interactional justice were related to whether team members engaged in organizational citizenship behaviors. If individuals felt that team members were being treated fairly, they were more likely to help one another (Burton, Sablynski, & Sekiguchi, 2008). Collective leadership relies on the effective coordination of multiple individuals and for the individuals with the requisite expertise to step up into a role that may be beyond their defined set of tasks which is similar to organizational citizenship behaviors.

**Proposition 26: Justice perceptions will be related to collective leadership such that high justice perceptions will foster collective leadership and low justice perceptions will undermine collective leadership.**

**Team Performance Parameters**. The final key collective leadership component is team performance parameters. Team performance parameters include characteristics of the team, problem conditions, and perceptions that the leader or team have that might direct or restrict the emergence of collective leadership and team performance (Ilgen et al., 2005; Pittinsky & Simon, 2007; Taggar & Ellis, 2007). Team performance parameters are particularly critical in the collective leadership process given that they are proposed to be behavioral indicators of a capacity for collective leadership, antecedents to team processes, and a gateway to team performance capabilities and outcomes. The variables included within team performance parameters cover a wide range but fall into three general groups: capacity for problem solving, team orientation, and team structuring and maintenance.

One approach to understanding organizational processes is to dichotomize processes as either work task behaviors or interpersonal behaviors. Of the many conditions that may direct or restrict the emergence of collective leadership and group performance, it appears that these two general categories hold (Kickul & Neuman, 2000). Specifically, it is likely that there will be characteristics or conditions within the team that will shape the team's problem solving (e.g., information sharing, task interdependence, concurrence seeking) which will impact performance, as well as interpersonal or team oriented mechanisms (e.g., in-grouping, openness to feedback, conflict management) that will influence performance. Finally, there are likely also structural and team maintenance characteristics (e.g., team stability, autonomy, enabling interactions) that will

influence collective leadership and performance. Taken together, we can use this dichotomy to better understand the behaviors, processes, and outcomes associated with collective leadership.

A team's ability to solve problems, in particular complex and ill-defined problems, can be influenced by a number of individual, team and organizational factors (Mumford & Hunter, 2005). The capacity for a team to effectively work through a problem is dependent upon the level of individual expertise brought to the team as well as the team processes that enable effective utilization of that expertise (Grosse, 2007). Those parameters include conditions such as collaborative problem solving (Chatman & Flynn, 2001), establishing a shared goal (Pittinsky & Simon, 2007), sharing information (Tse, Dasborough, & Ashkanasy, 2008), and achieving an appropriate level of concurrence seeking (Eaton, 2001) and task interdependence (Uhl-Bien et al., 2007). By creating conditions in which the team can capitalize on the different types of expertise within the team, collective leadership can emerge and performance will be enhanced.

In a study along these lines, Taggar and Ellis (2007) evaluated the problem solving norms of teams, their effect on individual problem solving behaviors, and the role of emergent leadership in the process. The results indicated that collaborative problem solving norms were related to individual members' conflict resolution, collaborative problem solving, communication, goal setting/performance, and planning and task coordination. Additionally, they found that individuals emerging as leaders could establish these norms, which was particularly beneficial when team member expectations for collaborative problem solving were low. Two critical points can be taken away from these findings. First, the research identified the role of norms on an individual's performance as it related to overall team performance. Second, the research illustrated a case in which collective leadership may emerge among team members to establish these norms and expectations. It is anticipated that similar patterns will emerge for the other parameters mentioned previously, in which conditions are set to facilitate problem-solving.

**Proposition 27: Collective leadership will facilitate a team's capacity to solve problems and ultimately improve team performance.**

One of the critical considerations that must be taken into account when moving from individualized work to teamwork is the plethora of interpersonal factors that are then introduced into the process. The interpersonal dynamics within a team have been shown to be strong predictors of team success or failure (Barsade, 2002; De Dreu & Weingart, 2003). More relevant to the proposed framework, several interpersonal factors are believed to influence the emergence of collective leadership within a team. As we mentioned in the discussion of affective climate, individuals must be committed to and engaged in a team for collective leadership to emerge, and poor interpersonal team conditions are a potential limiting factor in this regard. For instance, Hooper and Martin (2008) demonstrated that perceptions that others were being treated differently by a leader led to conflict between team members, which ultimately led to decreased job satisfaction and well-being. These outcomes would likely reduce the contributions to collective leadership.

It should be noted here, however, that it is not necessarily desirable that a team be entirely agreeable and cohesive. Although there is a level of cohesion and shared situational awareness required so that team members can work together effectively (Mumford & Hunter, 2005), too much cohesion and concurrence seeking can lead to groupthink or, more generally,

reduce the utilization of different expertise within the network (Eaton, 2001). Thus, it is anticipated that desirable interpersonal parameters would include a supportive and cohesive team that is also open to dissent, feedback, and utilizes multiple sources of expertise. In an illustration of this point, Eaton (2001) discusses the actions of management teams at British Airways and Marks & Spencer (an English department store chain). A content analysis of documents from both companies revealed that their financial downfalls could be traced to an overreliance on established methods, strong in-grouping, and an aversion to any difference of opinions. These conditions would also limit the emergence of collective leadership. Interestingly, we believe collective leadership would prevent or overcome the potential for limiting the scope of a team's problem-solving due to its utilization of differential expertise.

In addition to the affect-relevant interpersonal parameters, interactional conditions can shape how team processes occur and how collective leadership may emerge. For instance, for collective leadership to occur and have an influence on performance, conditions must exist for team members to interact and share information (Uhl-Bien, Marion, & McKelvey, 2007). Along similar lines, team members should engage in some level of self-management, or decentralized control, so that different, non-formal, leaders are able to take on elements of the leadership role (Shipper & Manz, 1992). If the control is decentralized or members are engaging in self-management, it will facilitate the distribution of the leadership role.

**Proposition 28: A positive team-orientation will facilitate the emergence of collective leadership and overall team performance.**

**Proposition 29: Cohesion will have a curvilinear relationship with collective leadership in that some is required for teams to effectively communicate and share expertise, but too much will reduce the likelihood that different leaders will emerge.**

**Proposition 30: Decentralized power and self-management within the team will facilitate the use of collective leadership.**

The final set of performance parameters are the more logistical elements of the team that may play a part in shaping how team processes occur. These structural and team maintenance factors can play a critical role in team performance and may be the easiest to adjust. These functional elements include such things as the stability or tenure of the team, skill composition, the team's autonomy, role integration, and preparation for team activities (Mumford & Hunter, 2005; Spreitzer, Cohen & Ledford, 1999; Uhl-Bien et al., 2007). In a related study, Spreitzer, Cohen, and Ledford evaluated self-managing work teams in real-world organizations and found that logistical team characteristics, such as team coordination, expertise, and stability, were related to the effectiveness of the self-managing work teams. Three important conclusions can be drawn from this research. The first is that a team should have both the necessary composition of knowledge and skills required for performance. Second, the team should be stable enough to have established clear team norms. Third, these conditions are related to team self-management – a process closely tied to collective leadership. Although more straightforward and stable than problem-solving and interpersonal parameters, structural parameters may be quite significant, as it seems collective leadership may be severely hindered should the team be poorly constructed and norms not adequately established.

**Proposition 31: The structural characteristics of a team will influence both the capacity for collective leadership and team performance.**

**Base-Line Leadership and Team Processes**

Having reviewed the key collective leadership constructs, we now turn to base-line leadership and team processes that, unto themselves, typically constitute how leaders influence teams and ultimately team outcomes. For instance, most general models of team leadership propose that a leader's skills and abilities are related to how they structure or manage the tasks and interpersonal functioning of the group, which then impacts team processes and ultimately team performance (Day, Gronn, & Salas, 2004; Zaccaro, Rittman, & Marks, 2001). These processes serve as the support structure and mediating influences on collective leadership. It is unlikely that collective leadership will occur without being influenced by the leaders' skills and abilities, the leaders' structuring and maintenance of the group, the group's mission, or team processes. We will focus on the base-line leader factors and team processes that will have a direct effect on collective leadership.

**Leader Skills and Abilities.** Whether the individual or group of individuals serving in a leadership capacity are doing so in a formal or informal role, it is clear that there are certain skills and abilities associated with effective leadership. For instance, intelligence, creativity, emotion regulation, and wisdom have all been shown to be related to leadership performance in various situations (Fiedler, 1986; Kikul & Neuman, 2000; Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000; Pirola-Merlo, Hartel, Mann, & Hirst, 2002; Sternberg, 2003). In reviewing the sets of skills often associated with effective leadership, several were identified as being particularly relevant to collective leadership processes. Yukl (2009) divides leader skills and abilities into three broad categories: conceptual, interpersonal, and technical. We will use the same categorizations for the skills and abilities relevant to collective leadership.

The first category, conceptual skills and abilities, includes capacities such as intelligence, creativity, foresight, intuition, and wisdom. Conceptual skills are particularly critical when it comes to problem-solving in which leaders play an important role (Mumford et al., 2000). Leaders are often the ones who identify problems, engage in sensemaking, define problems for the team, and direct others in working toward a solution (Mumford, Friedrich, Caughron, & Byrne, 2007). Intelligence, or general cognitive ability, is consistently related to effective problem-solving and decision-making (Sternberg, 2003). Additionally, capacities such as foresight, intuition, and wisdom often contribute to leaders' effective identification of problems, planning and prioritization of tasks, and anticipating potential pitfalls and outcomes (McKenna, Rooney, & Boal, 2009; Sternberg, 2003). Finally, creative problem-solving skills such as idea generation and idea evaluation help leaders clarify a team's objectives without restricting the problem-solving of team members (Friedrich et al., in press).

**Proposition 32: The conceptual skills and abilities of leaders are positively related to effective identification of problems, structuring of the group work, and clarification of objectives which will facilitate the distribution of the leadership role.**

The second category, interpersonal skills, includes capacities such as network awareness, network accuracy, perspective taking, political skill, emotion regulation, and communication (Balkundi & Kilduff, 2005; Drazin, Kazanjian, & Glynn, 2008; Mumford et al., 2000; Pirola-

Merlo et al., 2002). The foundation of collective leadership is the selective distribution of leadership responsibilities among team members based on the expertise of members within the network. In order for responsibilities to be efficiently distributed, the individuals serving in a leadership role must be aware of the network and the expertise within it and understand its structure and connections to most efficiently distribute responsibilities. Along these lines, Balkundi and Kilduff propose in their social network approach to understanding leadership, that a leader's ability to accurately assess the structure of the networks and the nature and content of the connections such as friendships or information exchange patterns, will be related to their overall effectiveness.

Similarly, political skills imply an accurate understanding of the social and task implications of one's behaviors and the effective use of social capital to accomplish goals (Treadway, Hochwarter, Ferris, Kacmar, Douglas, Ammeter, et al., 2004). Thus, political skills are likely related to leader-team exchange such that the leader is able to anticipate the social and political implications of distributing leadership responsibilities to certain individuals. Additionally, an understanding of the political scheme would likely lead to exchanging leadership responsibilities for the purpose of developing other leaders and facilitating succession planning.

Emotion management and communication skills are interpersonal skills that facilitate interactions with others. Communication skills are essential for interacting with team members in order to access information within the network and also for providing clear directives and expectations. A leader that is a skilled communicator can motivate others by communicating the team mission (Mayfield & Mayfield, 2007). Emotion management is also relevant in this regard, such that a leader that is able to accurately perceive, interpret, and display emotions can engage the emotions of others and be particularly powerful motivators. Finally, a leader that is capable of regulating his or her emotions and the emotions of others will communicate emotional stability to team members, both verbally and non-verbally, which can help establish a stable affective climate (Pirola-Merlo et al., 2002).

**Proposition 33: Interpersonal skills will be positively related to the effective distribution of leadership responsibilities, will facilitate information exchange, motivation of followers, and maintaining a positive affective climate to foster the use of collective leadership.**

The final category is technical skills and abilities which generally includes procedural knowledge related to the work the person does or to technical knowledge of how to be a leader. Technical skill is typically associated with experience or expertise in a particular domain. Expertise developed through familiarity with the domain also provides past cases from which the leader can base their problem-solving (Ericsson & Charness, 1994). This library of cases helps the leader accurately identify the problem, structure and define it for others, and also understand which responsibilities can be distributed via leader-team exchange (Mumford et al., 2007). Additionally, general leadership experience would provide the leader with an understanding of when and how leadership responsibilities can and should be distributed among other members of the team as well as how to motivate others to accomplish the objectives. Also, time and experience with the team members would provide valuable information with regard to recognizing and effectively accessing information and expertise from others within the network.

**Proposition 34: Technical skills in the work domain will be positively related to identification of problems, structuring work tasks, and appropriately distributing the leadership roles in the collective leadership process.**

**Proposition 35: Experience as a leader will be positively related to accessing information within the team network, structuring work tasks, motivating team members, and distributing the leadership role through leader-team exchange to facilitate collective leadership.**

**Leader Structuring and Maintenance of the Group.** The second base-line leadership process includes structuring team members' work tasks as well as organizing, maintaining, and distributing team resources. Initiating structure has long been held as a behavior central to leadership (Fleishman, 1953; Stogdill, Goode, & Day, 1962), and is particularly important for the leadership of teams in which it is necessary to get multiple people organized and working toward a shared goal (Mumford, Scott, Gaddis, & Strange, 2002). One method leaders employ to structure tasks is through the use of sensemaking, or interpreting a problem or situation and expressing this interpretation to the team members (Mumford et al., 2002). Sensemaking relies on leaders filtering and interpreting information which, as mentioned before, is dependent on leaders being skilled in accurately identifying and processing relevant information. A leader's sensemaking behavior is directly related to the mission or objectives that they ultimately give the team. The accuracy and clarity of the interpretation that a leader has of a problem will relate to the clarity of the mission that followers receive. The leader may also engage in sensemaking that could ultimately lead to team norms. For instance, the pattern of interpretations that a leader has of different situations may signal to team members that he or she expects members to act collectively rather than individually in solving problems. Thus, sensemaking may also be directly related to team processes.

**Proposition 36: Leader sensemaking is positively related to the development and communication of team missions and establishment of team norms which will facilitate the emergence of collective leadership.**

In addition to sensemaking, leaders engage in more straight-forward logistical team maintenance behaviors of structuring tasks the team must accomplish. In doing so, they must engage in strategic planning, as well as personnel and resource management. As leaders are faced with managing tasks and resources and the specific contingencies and restrictions associated with that, it will influence how they define the problem, prioritize goals, elaborate their strategy and clarify objectives to the team (Mumford et al., 2007). This would ultimately influence the mission that they present to followers. Additionally, the way in which leaders structure tasks and manage resources can also directly impact team processes. Although a leader's structuring and maintenance of the group is not directly related to core collective leadership constructs, it still plays a critical role in the collective leadership process. For instance, there may be situations in which the way the leader structures the work and conveys the mission does not lend itself to team processes that encourage collective leadership. Additionally, a leader may engage in sensemaking that does not communicate to others that they should step forward and assume leadership responsibilities.

**Proposition 37: How a leader structures and maintains a group will impact team processes (e.g., member interaction) that may foster or hinder collective leadership.**

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**Mission.** The third element of the collective leadership framework that is central to the standard leadership process is the definition of a mission. It is critical to point out that we do not necessarily mean a defined mission in the Army context, but rather a general directive or unifying goal that may be formal or informal. Generally, leaders are expected to provide direction and to motivate followers. The definition of leadership implies an influence of others toward a collective goal, which can be communicated through a mission. Missions are used by leaders to define the ultimate goal, establish how resources may be selected and distributed, define the scope of acceptable solutions to the given problem, and also provide followers a framework for how they can personally contribute (Mumford, Bedell-Avers, & Hunter, 2007). Missions have also been shown to be related to project success (Pinto & Prescott, 1988). Leaders communicate missions to clarify objectives and to motivate followers.

Following sensemaking and task structuring behaviors, it is necessary for leaders to further define the problem for followers, prioritize goals, elaborate on strategies they may use, and clarify the ultimate objectives (Mumford et al., 2008). Engaging a group of individuals in a mission is also a bonding event and has critical implications for team processes. An overarching team goal provides teams a central concept to collectively commit to, and thus unites them as a team. The clarification of goal priorities will also likely impact whether elements of the leadership role can be distributed via leader-team exchange. For instance, if the objectives established in the mission are not easily directed by multiple individuals, it will limit the degree to which the role is exchanged. It is important to note that the definition of objectives and prioritization of goals in constructing a mission does not rest solely in the leader's hands. Through leader-team exchange, other team members may be given a voice or may engage in sensegiving that shapes how the mission develops (Foldy, Goldman, & Ospina, 2008).

**Proposition 38: Use of a mission to clarify objectives will be related to logistical team processes, and whether the leadership role will be distributed via leader-team exchange.**

A mission can also be used in a more inspirational or motivational sense to align team members and facilitate interpersonal team processes. For instance, a leader may reiterate team ideals that encourage team members to act collectively, engage in back-up behaviors, or cooperate with one another. Along these lines, Berson and Avolio (2004) demonstrated in a recent study that transformational leaders, or leaders that engaged in visioning behaviors, had followers that had a better idea of the collective goals of the organization. Creating a shared purpose and using inspirational and idealized influence tactics would likely also impact others' willingness to engage in sharing the leadership role or other leader-team exchanges. Not only would members feel more comfortable taking on leadership responsibilities with a clear idea of what the overall goal is, but having a unifying goal may make them more committed to one another and willing to step into a leadership role if the need arose.

**Proposition 39: Use of a mission to motivate and inspire followers toward a collective goal will be increase team members' willingness to engage in leader-team exchange and ultimately foster collective leadership.**

**Team Processes.** At the core of collective leadership is the presence of a team, and more importantly, team members that are willing and able to step into leadership roles given the needs of the situation. There are certain team processes that are expected to facilitate this emergence of different leaders, both logistical and interpersonal processes. As illustrated in the framework,

team processes may influence and be influenced by the leader's structuring and maintenance of the group, the team's mission, team performance parameters, and team performance capabilities. For the purpose of developing a framework of collective leadership, we will make general statements about two types of broad team processes and include specific processes we anticipate to be more directly related to collective leadership. The relationship between team processes and the first outcome of the collective leadership process, team performance capabilities, is particularly important. Team performance parameters, or the conditions within a team that may direct or restrict how collective leadership emerges, moderate this relationship. As will be discussed in the next section, team performance capabilities fall into two categories: problem-solving capacities and team management. Both logistical and interpersonal team processes are anticipated to influence the development of both sets of capabilities.

Logistical team processes are likely to influence the team's capability to solve problems and to effectively manage the team (Day, Gronn & Salas, 2004). Examples of logistical team processes include performance monitoring between team members, back-up behaviors that team members take to assist one another in getting the task accomplished, or adapting to contingencies and restrictions. For instance, performance monitoring, or monitoring of one's fellow teammates' performance, is a critical team process in which team members' roles are interdependent, as they would be in a situation in which the leadership role is shared (Day et al., 2004; Carson, Tesluk & Marrone, 2007). Additionally, effective team logistics will likely impact elements of team management such as role clarity, coordination, and distributed leadership capacity. Role clarity with regard to one's individual role is important unto itself, but it has other important implications when team members are aware of the roles that other members are capable of undertaking. Specifically, it would be critical to the emergence of informal leadership which relies on understanding who to go to for leadership in certain situations. Additionally, it would also lead to intuitive working relationships, another critical team capability, where the direction of work flow would not have to be articulated but would rather be intuitively understood. This is an important capability for a team to be readily adaptable, particularly for the selective emergence of expertise in different situations.

**Proposition 40: Effective logistical team processes will be positively related to the development of problem-solving capacities and team management which will increase the use and success of collective leadership.**

As with logistical team processes, interpersonal team processes have implications for both problem-solving capacities and team management, but influence different elements of each. Interpersonal processes such as cooperation, culture of teamwork, and collective focus are likely to be related to the way in which the team addresses problem-solving. In a related study, Hardin, Fuller, and Davison (2007) evaluated virtual teams and found that individuals were less confident in their team's ability to solve problems than if they were in traditional face-to-face teams. The team's collective efficacy, an important problem-solving capability, was significantly influenced by the degree of interpersonal interaction.

Interpersonal team processes play an important role in team management capabilities. Having cohesion, commitment, and trust among team members is important to maintaining working relationships between team members, effectively resolving conflicts that might arise within the group, and with getting members of the team to buy-in to the solutions they are developing. Research conducted by Taggar and Haines (2006) provides evidence along these

lines. They found the degree to which team members perceived their tasks as interdependent was influenced by their belief in the value of teamwork, self-efficacy for teamwork, and collectivist feelings. Thus, the way in which individuals manage their work interdependence is likely related to their perceptions of interpersonal conditions.

**Proposition 41: Interpersonal team processes, such as commitment and interdependence, will be positively related to the development of problem-solving capacities and team management which will increase the use and success of collective leadership..**

**Outcomes**

There are a variety of potential outcomes of the collective leadership process and many are similar to general team performance outcomes (Day et al, 2004). However, the outcomes identified are anticipated to be ones in which collective leadership could have implications as an antecedent or moderator. The first set of outcomes, team performance capabilities, are specific to the team and include lasting conditions or capacities built within the team that will be beneficial to future team performance but can be considered outcomes unto themselves. Immediate outcomes are individual-, group-, and organizational-level conditions that may directly emerge as a result of collective leadership or related processes. Long-term outcomes are less direct in their connection to collective leadership and/or take more time to emerge. These outcomes are also chained in that each subsequent set of outcomes is likely to influence the next. It is reasonable to assume that capabilities developed within the team as a result of collective leadership will be the gateway by which collective leadership influences immediate and long-term outcomes. Additionally, although not all immediate outcomes are tied to the long-term outcomes, several long-term outcomes are influenced by those that are more directly connected to collective leadership.

**Team Performance Capabilities.** Although there is little empirical research on collective leadership as it is defined in this framework, deductions with regard to outcomes can be drawn from extant work on the benefits of shared and distributed leadership, collaboration among team members of different expertise, top management teams, and research and development teams (Carmeli & Schaubroeck, 2006; Hauschildt & Kirchmann, 2001; Hiller, Day & Vance, 2006; Pearce & Sims, 2002). Additionally, assuming as we have in previous sections that collective leadership processes influence team performance parameters and team processes, findings regarding the relationship between team performance capabilities and team processes and performance parameters are also relevant. In reviewing these two bodies of literature, it appears that the performance capabilities of a team that emerge as a result of the collective leadership process fall into two general categories: problem-solving capacities and outcomes related to effective team management. By strategically distributing leadership responsibilities based on information and expertise accessed from the team network, the teams are better able to both solve problems and to respond to team management issues.

Problem-solving capacities, such as adaptive performance, spontaneous collaboration, decision acceptance among members, shared situational awareness, and collective efficacy, are team outcomes directly related to a team's ability to address specific problems (Gronn, 2005; Klein, 2000; Pittinsky & Simon, 2007; Taggar & Ellis, 2007; Uhl-Bien et al., 2007). Team management capabilities, on the other hand, focus more on the development and maintenance of persistent team conditions that make the team successful. Several studies on the distribution of

the leadership role indicate that it is positively related to a team's effectiveness in accomplishing goals, or, more directly, their problem-solving capacity. For instance, Pearce and Sims (2002) demonstrated in their study of change management teams that sharing of the leadership role was a significant predictor of team effectiveness as measured by supervisors, customers and the team themselves. Similarly, Carmeli and Schaubroeck's (2006) work on top management teams, showed having multiple individuals serving in a leadership capacity, who have a high degree of behavioral integration, produce better problem solutions. Other problem-solving capacities that may also be related to collective leadership, through the concerted effort to share information and access expertise in the network, may include the development of team expertise, creativity, synthesis of ideas, and knowledge integration.

**Proposition 42: Collective leadership will be positively related to a team's problem-solving capacity, which will, in turn, be related to immediate and long-term performance outcomes.**

A second set of team performance capabilities that may develop through collective leadership revolve around the effective management of the team, such as network sharing, intuitive working relations, coordination, distributed leadership capacity, and role clarity (Aryee & Chen, 2006; Gronn, 2005; Howell & Boies, 2004). Effective management of teams contributes to sustained performance and attainment of long-term outcomes. Specifically, awareness of networks and the use of information that lies within them for regularly distributing leadership responsibilities throughout the team can eventually create a capacity within the team to rapidly and efficiently snap into the appropriate "collective." For instance, in a recent qualitative study on emergency room teams, Klein, Ziegert, Knight, and Xiao (2006) found that an understanding of one another's skills and abilities to assume roles led to the leader's ability to rapidly delegate responsibilities to other individuals and other's acceptance of those individuals' authority. Additionally, Hiller, Day, and Vance (2006) identified a series of team-level behaviors that may be included in collective leadership and found that support and consideration, as well as development and mentoring behaviors within the team, which could be considered team management capacities, were related to supervisor ratings of overall team performance. Other team management capabilities that may emerge from collective leadership processes and increase a team's capabilities for future performance may include conflict management, developing leadership potential within team members, and brokering or championing projects with those external to the group.

**Proposition 43: Collective leadership will be positively related to a team's management processes that will enable future performance.**

**Immediate Outcomes.** Emerging from the performance capabilities are outcomes that have implications beyond the team's problem solving and management capabilities. These outcomes are more external to group processes and more readily observable. However, they are still more immediate than organizational outcomes or team outcomes and may take longer to develop. As with most leadership outcomes at the organizational level there is typically a delay between the leader's action and observable outcomes, which makes evaluating leadership effectiveness particularly difficult (Yukl, 2008). Immediate outcomes are fairly concrete and take two forms: 1) performance outcomes such as solving the problem at hand, creativity of the problem solution, efficiency or safety, or 2) follower outcomes such as follower satisfaction, trust and loyalty for the team (Hiller et al, 2006; Yukl, 2008; Zaccaro, et al, 2001).

The literature on research and development teams contains the bulk of the research investigating the relationship between teams with multiple leaders and immediate performance outcomes. For instance, Hauschildt and Kirchmann (2001) evaluated innovation teams and found that teams that had a collective of three leaders distributing different elements of the "champion" role were more innovative than other teams. In addition to findings with regard to multiple leaders, there is evidence that performance capabilities proposed to emerge from collective leadership are related to important immediate outcomes. A particularly important set of team capabilities that should emerge from the collective leadership process is an awareness of other's networks and the increased sharing of information within the network and the resulting behavioral integration that occurs. As demonstrated by Carmeli and Schaubroeck (2006), behavioral integration, which includes constructs such as collaboration and exchanges between members, is related to increased quality of strategic decisions.

**Proposition 44: Collective leadership will be positively related to immediate team performance outcomes such as the creativity, efficiency and quality of a problem solution.**

In addition to performance outcomes, there are several follower and interpersonal outcomes that may be observed as immediate benefits of collective leadership. Research on empowerment, shared leadership and delegation provide some evidence in this regard (Carson, Tesluk & Marrone, 2007; Koncsak, Stelly & Trusty, 2000). For instance, in a recent study, Carson, et al. (2007) found that shared leadership was correlated with follower perceptions of having a voice in decisions, feelings of shared purpose, and perceived social support.

Additionally, being aware of one another's network and collaborating in a collective manner may also have important immediate interpersonal outcomes. In a recent study, Balkundi and Harrison (2006) found that the density and expressive nature of team member's network connections to one another was related to team viability which included interpersonal outcomes such as team climate, commitment, or cohesion. Thus, it seems reasonable that fostering interpersonal interactions and awareness of networks may foster these positive interpersonal outcomes in teams.

**Proposition 45: Collective leadership will be positively related to immediate team interpersonal outcomes, such as commitment, cohesion, and social support.**

**Long-Term Outcomes.** The final set of outcomes of the collective leadership process are those that may take longer to observe and are likely to have more persistent effects than short-term outcomes. Collective leadership is proposed to have lasting effects on both individuals, such as their long-term job performance and job satisfaction, along with effects on the group and organization such as growth, adaptability, and the organization's culture. Much of the individual long-term outcomes are tied closely to short-term outcomes. Specifically, the individual benefits that come with being given a voice in decision making will likely not just be an immediate outcome but with persistent collective leadership will remain over time. Additionally, there are long-term developmental benefits of a leader engaging in consultation, delegation, and empowerment such that other individuals are gaining experience in the leadership role (Yukl, 2009).

**Proposition 46: Collective leadership will be related to developing the leadership capacity of individuals within the team.**

Long-term group and organizational outcomes are often the focus of research on the benefits of various organizational processes. These outcomes, frequently focused on the "bottom line," are often of the greatest consequence. However, they are often the most difficult to connect to specific processes. Additionally, given the scope of the processes occurring within larger entities like organizations, it is difficult to pinpoint what is causing the outcome. Based on existing research there is reason to believe that collective leadership may be beneficial to long-term group and organizational outcomes such as growth, innovation, survival, adaptability, and organizational culture. Although there is little research on collective leadership and organizational outcomes, assumptions about long-term outcomes can be reasonably derived from the immediate outcomes and performance capabilities reviewed earlier. If, as the research indicates, the distribution of the leadership role is related to project team success, including solution quality and originality, it is anticipated that the aggregate of these project teams will lead to long-term innovation and productivity at the organizational level. Similarly, if collective leadership results in more effective team management and builds lasting capabilities within the team for continued performance, there will likely be long-term benefits to production and logistical processes.

**Proposition 47: Collective leadership will be related to long-term group and organizational outcomes by building the leadership capacity of individuals and strengthening team performance capabilities.**

**Situational Factors**

Clearly the collective leadership process does not occur in a vacuum, nor is it likely that collective leadership will emerge the same way in every situation, if at all. As is the case with leadership in general, there may be situations in which the need for collective leadership is diminished (Podsakoff & MacKenzie, 1995; Schriesheim, 1997), or situations that may affect the way in which collective leadership operates within the team. There are two aspects of the situation that we propose may influence the collective leadership process. First, there are characteristics of the setting that a specific problem or event occurs within that are likely to influence it. For instance, there may be aspects of the problem at hand such as the complexity or novelty of the problem that can impact how leadership operates. Additionally, there may be constraints associated with the given problem such as resource availability, the team's existing workload or other organizational structural impediments (Mumford et al., 2007).

In addition to characteristics of the problem setting, static conditions within the organizational context are likely to impact collective leadership. They may even be preconditions for collective leadership to occur. It is important to point out that the framework that has been presented thus far is a snapshot of how collective leadership may arise for a single collective around a single event or problem. Thus, characteristics of the problem setting are tied directly to that event. Organizational context factors, on the other hand, are more static conditions that persist across events and may influence the collective leadership process more broadly.

**Problem Setting.** As mentioned before, the framework depicts a snapshot of a single collective that emerges in response to a single event or problem. Information about the problem enters the system via the networks: either the leader becomes aware of the problem via their own network or issues are communicated to them through the team network. Thus, individuals are the access points for information regarding the problem setting. Additionally, there are two general

types of problem information that may come from different sources: information about the specific problem and information about constraints or contingencies within the team or organization that are specifically relevant to the problem. For instance, an emergency room team faced with a particular type of trauma case will have characteristics about the specific trauma that will play a role, such as details of the patient's injury. In addition, they will also have information about the team or organization that will provide constraints relevant to that isolated case, such as number of staff available to work on that particular case.

Extant research on leader and team problem-solving indicates that there are several important factors that may impact how leaders make sense of problems, how they distribute problem-solving responsibilities, or how teams as a whole go about solving problems. Along these lines, Mumford et al. (2007) point to several characteristics of crisis events that influence how leaders think through problems: choice optimization, complexity and ambiguity, novelty, resource accessibility, and lack of social/structural support. Based on prior research it seems that as problems increase in complexity, the harder it may be for leaders to distribute responsibilities. For instance, the Vroom-Yetton (1973) model of leader decision making indicates that in situations in which the quality of the decision is important, the problem is unstructured and followers may not contribute information beyond what the leader has him or herself, it may be best that the leader act in an autocratic manner rather than consulting followers. Therefore, specific characteristics of the problem may influence whether, and how, collective leadership emerges.

**Proposition 48: Characteristics of the specific problem will moderate how the leader and team make sense of the problem and how the leadership role is distributed in response to the problem.**

Along with characteristics of the specific problem, there may be constraints within the team or organization that have implications for the collective leadership process. Unlike organizational context factors, these may be fleeting but, more centrally, are specifically relevant to the given event or problem. Examples include resource availability, social or structural support within the team, or team workload. Problem constraints may dictate how information gets relayed, how leaders process and prioritize information, and how the leadership responsibilities may get distributed. For example, Yukl and Fu (1999) conducted a study in which they asked leaders to respond to potential reasons for delegating or not delegating responsibilities. The findings indicate that a leader who perceived the problem to be difficult to monitor or explain to subordinates was less likely to delegate the responsibilities. Thus, it seems that if leaders are not in a situation conducive to distributing responsibilities, such as having enough time and resources to monitor their progress, they will be less likely to distribute the leadership role.

Similarly, there may be impediments to communication channels or network conditions specific to that problem at that given time that will have an impact. The proposed framework is information-based and the distribution of the leadership role relies on the communication of expertise between individuals. If leaders and other team members are unable to accurately and efficiently access information about expertise for a given problem, the emergence of collective leadership will be hindered. In a related study, Mesmer-Magnus and DeChurch (2009) evaluated moderators between information sharing and team performance and found three critical conditions that may hinder information sharing (communication) between team members. They

found that team members are more likely to share information when all members know the same information, individuals are capable of making decisions autonomously, and members are highly similar to one another. These findings appear counterintuitive to what collective leadership hopes to encourage, which is the use of diverse available expertise to solve a problem: however, there are important implications from these findings. Specifically, it appears that team members prefer to talk to others that share their same information, which may be due to the ability to "speak the same language." Thus, if it is desired that team members share diverse information, they must be able to find common ground in order to communicate.

**Proposition 49: Constraints within the team and organization that are specifically relevant to the given problem will influence how the leader and team make sense of the problem and how the leadership role is distributed.**

  **Organizational Context.** As mentioned previously, the proposed framework is a snapshot of a single event. However, contextual factors are typically static conditions that persist across events and thus their influence is particularly critical to consider. Given that the proposed framework is information based and relies on the idea that expertise is the determining factor by which the leadership role is distributed, the expertise and general ability of the workforce to take on this role is a critical factor. In addition to characteristics of the workforce, there are also structural and cultural characteristics of the organization that may impact collective leadership.

  For the leadership role to be effectively distributed among multiple individuals, members of the team should not only have the expertise to make distributing the leadership role useful, but should also have the appropriate level of professionalism, integrity, and general leadership skill to take on the responsibility. In a study along these lines, Yukl and Fu (1999) evaluated the conditions under which leaders were more likely to engage in delegation and consultation and found that the level of the subordinates' competence was an important predictor for both. In addition they found high LMX (leader-member exchange) relationships, an indicator of trust between leaders and followers, and job level were predictors of consultation. In the context of collective leadership, it appears that characteristics of the workforce can play a critical part in whether the distribution of the leadership role occurs and whether it will be beneficial to the problem-solving process.

**Proposition 50: Characteristics of the workforce within the organization will be a delimiting factor in the likelihood of collective leadership emergence and success.**

  The interactional and knowledge-based nature of collective leadership dictates the increased importance of individual's characteristics and how the characteristics interact with one another. The organization as a whole can also play a significant part. Specifically, there are both structural and cultural aspects that can impact the emergence of collective leadership. Much work has been done on the influence of organizational structure on different processes, such as innovation and organizational strategies (Damanpour, 1991; Russell & Russell, 1992). There is reason to expect that structural issues such as hierarchy and work flow processes may also influence collective leadership. For instance, an organization with a rigid hierarchy may not functionally allow for the distribution of the leadership role, but also may communicate, via the structure, a culture that is not supportive of diverting from defined leadership roles. Additionally, the channels of information flow may dictate how leaders are able to access information in their network or how a network is structured. For instance, organizations in which cross-functional

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teams and workflow are interdependent among the members, more collective leadership may emerge because the structure forces the information exchange and awareness of each other's roles. In a related study, Rulke and Galaskiewicz (2000) found that the network structure within a team influenced information exchange within the team. Specifically, decentralized structures were more conducive to information flow which was related to team performance. Thus, the structure of the network, which influences the flow of information exchange, can have an impact on whether information is effectively exchanged and collective leadership can emerge.

Finally, an organization's culture can play an important role in whether collective leadership occurs. There has been significant work on organizational culture, its many manifestations (e.g., culture for creativity, culture for safety), and the effect that it may have on different processes (Ostroff, Kinicki, & Tamkins, 2003). An organization's culture consists of a set of assumptions about their shared beliefs and values that are stable and passed down to new members (Schein, 1992). The values that are communicated through an organization's culture can, ultimately, have a significant impact on the behavior of individuals within an organization (Ostroff et al., 2003). Therefore, to foster collective leadership, an organization may need to create specific organizational conditions that communicate that different elements of the collective leadership process are valued. For instance, it would be important that the organization values collaboration, interacting with one another, sharing information, understanding each other's networks and roles, and understanding that a formal leader may not always be the highest level of authority within a team.

**Proposition 51: Characteristics of the organization's structure and culture will influence the emergence and effectiveness of collective leadership.**

## Discussion

After decades of leadership research it is clear that there is no "leadership formula" or set of traits and behaviors that automatically makes someone a universally good leader. To this end, several leadership scholars have begun to speculate that the best leaders may be those that can adapt their style or set of behaviors based on what the situation requires (Hunter, Bedell-Avers & Mumford, 2007; Yukl, 2009). Although plausible, it seems it would be a rather rare occurrence to find an individual possessing all of the skills and abilities to lead well in all situations. Instead, it would be more realistic to expect, and perhaps encourage, multiple individuals with a diverse set of skills and abilities to collectively act as leaders, distributing the roles based on the situation. We hope, at this point, to have demonstrated the potential benefits of collective leadership and to have also laid out one way of interpreting how collective leadership may occur within a team. Before turning to the implications of the framework for research and practice, and general conclusions, we must first address some limitations of our approach.

**Limitations**

An initial glance at the proposed framework may have some wondering where, exactly, collective leadership *is* given that it is not a single component of the framework and there is no defined point at which we can say that collective leadership emerges. Rather, collective leadership is the result of several processes and may be dynamic and shifting. Additionally, because there is not a single pathway by which collective leadership may emerge, we did not limit our analysis to a single causal model. Thus, we have presented our analysis as a framework,

or a lens, by which we might evaluate the various processes that may lead to a leader, or team of leaders, selectively distributing the leadership role within the team based on the expertise required for a given problem. These multiple pathways and the complexity of the causal relationships within the framework mean that it will be quite difficult to test the framework in its entirety. As a whole, it is not likely a testable model. Rather, different pathways or components of the framework will need to be isolated and tested individually, and the pattern of results interpreted.

Additionally, given that there is not a specific point at which it emerges or that this point may vary depending on the situation, measurement will be quite complex and may involve assessing residual or post-hoc indicators that collective leadership has occurred. For example, measuring team member perceptions of the input that they had during problem-solving, or measurements over time of who is perceived as the leader in different situations. Despite the scope of the analysis and the inclusion of multiple pathways to collective leadership, it was still possible to develop testable propositions based on the extant literature. It is anticipated that as studies are conducted to test these propositions, the framework can be refined and, perhaps, causal models within it more clearly defined.

It should also be reiterated that this is a single perspective for evaluating collective leadership. Specifically, we have taken an information or expertise-based approach to evaluating how collective leadership occurs. Other approaches may take a strictly behavioral approach or may focus specifically on the division of roles. We have chosen the selective use of information and expertise within a network as the basis of collective leadership because we felt it more accurately represented the dynamic nature of how the power within a group may shift between individuals, which is often rooted in what expertise is required at the given time, more so than what specific traits or behaviors may be needed. Information and expertise are not, however, limited to factual information or expertise in a technical area. Rather, it may be the case that the person to whom the leadership role shifts is better suited because they are a better motivator or have more interpersonal influence among team members. In other words, they may have more "social expertise" rather than technical expertise. Essentially, there are multiple forms of information and expertise that may be tapped within the network as an individual emerges or is placed into a collective leadership role.

As mentioned previously, we have loosely defined leadership as a person or multiple people serving in a capacity to influence others. Along these lines it is not required there be an individual or group of individuals that are ever distinctly recognized as formal leaders. It is likely that a formal leader will be present, and the emergence of a collective does not obviate a formal leader if there is one, but it is also unnecessary that there be a formal leader. Additionally, the boundaries of what constitutes a team have not been defined. Clearly, as steps are taken to conduct research on the present framework, it will be easier to use teams of defined parameters. However, in keeping with the dynamic nature of the process, and the basis of collective leadership on information flow, it seemed counterintuitive to set arbitrary boundaries on what defined a team. Additionally, the critical propositions made concerning the emergence of collective leadership from patterns of information and expertise, are drawn more within networks which are unstable and nebulous entities. Individuals connected within a team's network are not exclusively connected to only other members of the team, and those external connections may

prove useful in the collective leadership process. Thus, the borders of the team were not explicitly defined.

The final point we would like to acknowledge is the overlap present between the proposed framework and existing models of teamwork and climate (Day, Gronn, & Salas, 2004; Ostroff, Kinicki, & Tamkins, 2003; Zaccaro, Rittman, & Marks, 2001). First, the nature of the framework is such that it will overlap with a number of theoretical areas. The constructs included in the proposed framework were abstracted from several bodies of relevant literature. Additionally, we have taken a rather integrative approach to examining a concept that occurs at the crossroads of several broad phenomena including leadership, teamwork, social networks, climate, expertise, and role allocation. As a result of the integration, there is some overlap between the framework and existing models in these areas. However, by integrating the models and presenting them through the lens of collective leadership, we feel a unique contribution is being made. For instance, much of the concepts included in the team processes, team performance parameters and team performance capabilities components of the model were abstracted from existing empirical and theoretical work on teams. Much of the extant work on teams, however, treats the team as a homogenous whole, rather than a collection of heterogeneous members. This is a critical diversion and contribution of the present effort. We have focused on the interaction between a leader and a team but not lost the importance of the diversity of contributions each individual member within the team brings to the leadership process.

The argument may also be made that, perhaps, much of what is included in the model constitutes a "climate for collective leadership" and thus may not make a contribution beyond the climate literature. Schneider (2000) defines climate as an aggregate of individual's perceptions about conditions within a team or organization, and it may be true that elements of the proposed framework such as empowerment, perceptions of voice, or an expectation that individuals will collaborate and step into leadership roles, could be elements of a climate for collective leadership. Although there may be some value to a climate for collective leadership approach, we felt that there were more elements to the process beyond climate such as the interactions that take place between individuals in a network, leader skills, and the functional distribution of the leadership role that could play a critical role in collective leadership. Even considering these points of discussion and potential limitations of our approach, we feel that the present framework provides a valuable contribution to work on collective leadership. We now turn to the implications of the proposed framework for future research and potential application.

**Implications for Research and Application**

Work on areas closely related to collective leadership, such as shared and distributed leadership (Gronn, 2002; Hiller et al., 2006; Pearce & Sims, 2002) and the relationship between leadership and social networks (Kilduff, Tsai, & Hanke, 2006; Sparrowe, Liden, Wayne & Kraimer, 2001) has seen rapid growth in the last decade. We believe the propositions made in the present review will add to this movement and provide important new questions to be answered to further expand our understanding of the collective leadership process. Although we have made propositions for each component of the framework, there are several areas that are more lacking than others in empirical evidence. These areas include communication, leader-team exchange, social networks, and the relationships between each of them. As we move forward in our

research on collective leadership, it is necessary that we first evaluate and refine our understanding of these critical components of the framework.

Much of the work on communication in the leadership context is focused on leader communication styles and the content of speeches (Awamleh & Gardner, 1999; Bligh & Hess, 2007; Bligh, Kohles, & Meindl, 2004). Within the context of collective leadership, however, we must examine how leaders engage in two-way communication with followers to access information from the networks, and also how communication influences the exchanges between leaders and teams in which the leadership roles are distributed. This may include studies in which leader communication patterns are evaluated or the content of team discussions is coded to evaluate the flow of information within the network. For instance, critical questions may include A) To whom are formal leaders talking when gathering information to solve a collective problem? B) Does group discussion and flow of information predict those identified as formal and informal leaders within the team? And C) How does communication between a leader and other team members differ when it is for the purpose of distributing the leadership role?

Similar to communication, it is critical to expand our understanding of social networks if we are to draw conclusions about information flow between team members and its relation to collective leadership. Social networks are the channel through which information about the problem flows, and, just as importantly, information about team members' available expertise is communicated. There are bodies of research on the functional composition of teams, and there is research on how logistical characteristics of social networks effect problem-solving, but there is little research that examines these together. To understand how expertise is selectively utilized, we must integrate these areas and evaluate the bases of social network connections, how information flows through the social network, and how understanding one's social network and the networks of those around oneself can facilitate collective leadership efforts.

The third critical area that needs further empirical work is the point at which the leadership role is distributed or the leader-team exchange. Although there is existing work on related areas such as shared leadership, distributed leadership and empowerment, there is little work on these areas taking an informational or expertise focus. Additionally, existing work does not represent the dynamic nature that a collective system based on information and expertise requires. Rather, they focus more on a static distribution of the leadership role taking a behavioral or functional perspective. Thus, it is necessary to begin to ask questions such as A) What type of expertise will leaders engage in leader-team exchange to access? B) Under what conditions is it adaptive for leaders to engage in leader-team exchange to access expertise rather than rely on their own skills and abilities? And C) What is the relationship between leader-team exchange and developing team performance capabilities?

In addition to advancing empirical work on collective leadership, a few general conclusions can be drawn from the proposed framework with regard to potential interventions to facilitate collective leadership. First, to effectively utilize the available information and expertise within a network, it is necessary that leaders and other team members accurately interpret and exploit those networks. Thus, it may be beneficial that leaders and team members engage in activities that increase their awareness of their network, other team members' networks, and the skills and abilities that the individuals in their networks can provide. Along similar lines, for a leader to access and use the expertise of other members and distribute elements of the leadership role to them, it may be a viable intervention to train leaders and team members on effective

communication. Finally, at the point of distributing the leadership role, leaders and team members should understand the leader-team exchange process. Specifically, to facilitate the distribution of the leadership role, leaders should be instructed on understanding when and how to distribute responsibilities. Members should also be prepared to take on leadership responsibilities when delegated to them. These are only a few of the many possible interventions that may ultimately emerge from the proposed framework. It is advisable, however, that further empirical work be done in these areas before specific intervention plans be developed.

## Conclusion

In sum, collective leadership can have significant and beneficial implications for team and organizational processes. It creates a more efficient use of expertise and also increases the effectiveness of leadership within the team by distributing elements of the leadership role to those that are best suited to take them on. There are a variety of components to this highly complex process and a multitude of factors that may influence the emergence of collective leadership. However, teams and organizations can create conditions to foster and facilitate the process. In developing the proposed framework of collective leadership we have taken a highly pragmatic approach to understanding how the leadership process emerges in a team. In the real world, it is unlikely and unrealistic to expect a single person to be a well-equipped leader in all situations. Rather, we should encourage leaders and team members to approach leadership as a collective effort that the team can be prepared for so that the response is rapid and efficient. In this vein, collective leadership is similar to the way in which messages are transferred in the human neurological system. Networks are structured like neurons within the brain. These connections are not flat, but rather a three-dimensional layered system of linkages. Neurons serve specific roles, but there is also emergent meaning when impulses follow certain paths. Similarly, there is meaning in the way information flows through specific patterns of team members. Finally, there is neural learning that occurs such that there are nearly automatic responses to given stimuli. In regard to collective leadership, it is conceivable that a team could develop their collective leadership capabilities such that the appropriate collective could be assembled rapidly in various situations. In an effort to continually improve the efficiency of teams, while also maintaining high quality performance, it is clear that collective leadership, through efficient responses in which valuable expertise is effectively utilized, would be highly valuable.

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